



REGISTERED AS A NEWSPAPER

TELEPHONE: CENTRAL 3617
TELEGRAMS: "CHEMICUS,
CANNON, LONDON" (2 Words)

PUBLISHED WEEKLY AT 42 CANNON ST., LONDON, E.C.4.

SUBSCRIPTION WITH
DIARY 20/- PER ANNUM
SINGLE COPIES 9d.

No. 2473.

JULY 2, 1927.

Vol. CVII.

Macfarlan's ANÆSTHETIC ETHER (KEITH'S)

FREE FROM OXIDATION PRODUCTS.

Equally suitable for administration by mask or open method.
In keeping qualities it is unexcelled.

J. F. MACFARLAN & CO.

109 ABBEYHILL,
EDINBURGH.

32 BETHNAL GREEN ROAD,
LONDON, E.1.



Reprint of Nineteenth Edition.

SQUIRE'S COMPANION

TO THE

BRITISH PHARMACOPŒIA, 1914.

Published by J. & A. CHURCHILL,
7 Gt. Marlborough St., W.1.

The Pharmaceutical Journal says—"A companion,
in the true sense of the word, to the official book."

The Chemist and Druggist says—"It maintains its
unique position as a national work of reference."

The British Medical Journal says—"No labour
has been spared to make the COMPANION a
complete, scientific and practical adjunct to the
BRITISH PHARMACOPŒIA."

Descriptive leaflet gratis.

Price 25s. net.

Chemists, 23s.

Post Free (inland) 23s. 9d.

*New
Edition*

Squire's Pharmacopœias OF THE London Hospitals

NINTH EDITION.

Published by J. & A. CHURCHILL,
7 Gt. Marlborough St., London, W.1.

A systematic comparison of the formulæ of thirty-one of the London hospitals, including the Children's Hospitals and the French Hospital. The formulæ are arranged under the headings of the various preparations so that an immediate comparison may be made between the prescriptions of the different institutions.

The British Medical Journal says—"The value of the book to the medical profession is even greater than that of its predecessor, since it comprises a practical compendium of all the best medical treatments."

The Lancet says—"There can be no question of the practical utility of a book which presents an exhaustive comparison of the pharmacopœias of the London hospitals, for in these institutions the formulæ will be selected for the best reasons which the knowledge of the day can furnish, while their selectors represent leading authorities on all therapeutic questions."

Price
12s. 6d. per copy.

Post Free
(inland) 12s. 11d.

SQUIRE & SONS, LTD.

413 OXFORD STREET, LONDON, W.1

Telegrams: "Squire, Wesdo, London."

Telephones: Mayfair 2307 (2 lines).

W. J. BUSH & CO.

LIMITED

DISTILLERS AND IMPORTERS OF PHARMACEUTICAL

ESSENTIAL OILS

MANUFACTURERS OF

FLAVOURING ESSENCES

FOR ALL PURPOSES

AND

FINE CHEMICALS

SPECIALITIES

ACETANILIDE, B.P. 1914
METHYL SALICYLATE
SODA SALICYLATE

SALICYLIC ACID
COUMARIN "BUSH"
THYMOL

VANILLIN "BUSH"

Tel. Ad.: "TANGERINE, LONDON."

Tel. No.: CLISSOLD 0461 (5 lines)

CHIEF OFFICES

Ash Grove, Hackney, London, E.8

FACTORIES AT

MITCHAM, Surrey

WIDNES, Lancashire

BRANCHES at - - GRASSE, MESSINA, MELBOURNE, SYDNEY,
NEW YORK, CHICAGO, MONTREAL, TORONTO, JOHANNESBURG



*British
Manufacture*

"DULCIFLOR"
 BRAND
(Registered Trade Mark)

COMPOUND
 FLORAL OILS
for SOAPS
 , , ,

PERFUMERY OTTOS
 , , ,

SYNTHETIC
 PERFUMES
 , , ,

TOILET WATER
 CONCENTRATES
 , , ,

Samples on request.

Stevenson & Howell Ltd.
 Standard Works,
 Southwark St., London S.E.1. Est'd 1882

Telephone,
 HOP. 4833 3 Lines.

Telegrams,
 "DISTILLER TELEW. LONDON."

MANUFACTURED ENTIRELY IN OUR OWN LABORATORIES

A A

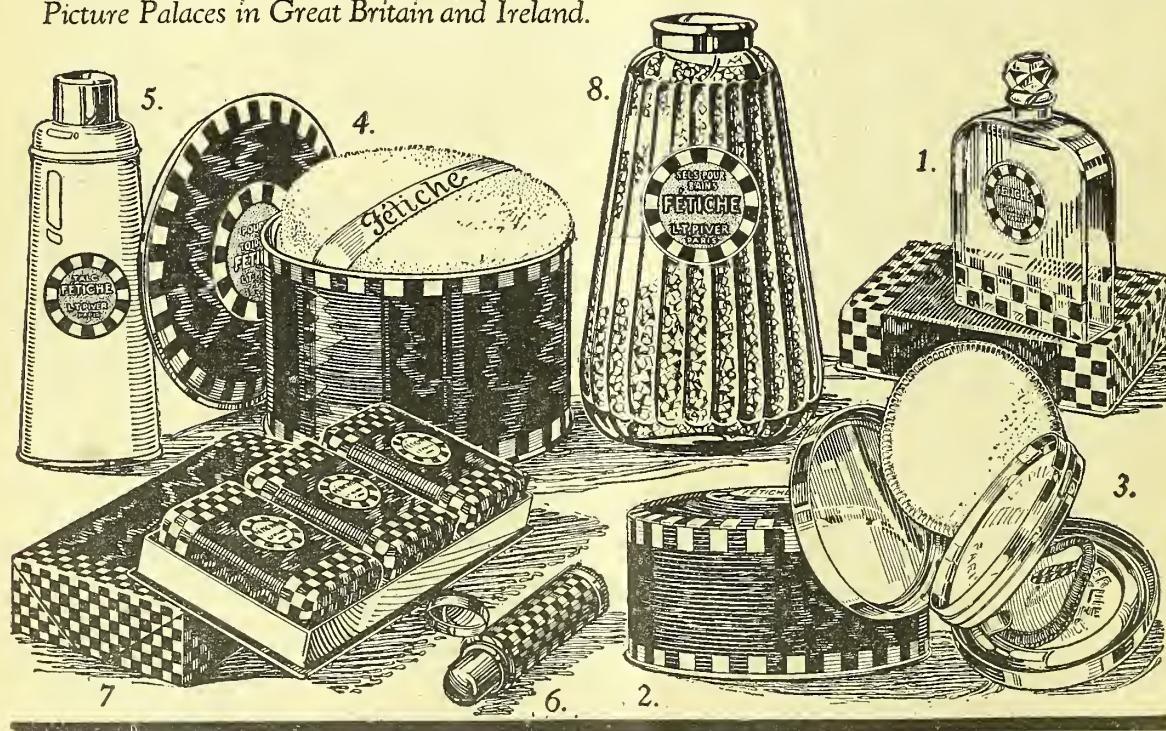
Fétiche

The Fragrant Secret of Adoration

by
PIVER
PARIS

Fétiche series are extensively advertised both in the leading London and Provincial daily papers, as well as in the most important illustrated weeklies and will also be supported by a cartoon film on the screen of the best Picture Palaces in Great Britain and Ireland.

1. Perfume
Wholesale . . . 40/- & 60/- per doz,
To Retail . . . 5/- & 7/6 per bott.
2. Face Powder
Wholesale . . . 20/- per doz.,
To Retail . . . 2/6 per box.
3. Twin Compact
Wholesale . . . 36/- per doz.,
To Retail . . . 4/6 each.
4. Toilet Powder
(Dusting Powder in metal container with puff.)
Wholesale . . . 28/- per doz.,
To Retail . . . 3/6 each.
5. Talcum Powder
Wholesale . . . 12/- per doz.,
To Retail . . . 1/6 each.
6. Lipstick
Wholesale . . . 20/- per doz.,
To Retail . . . 2/6 each.
7. Toilet Soap
Wholesale . . . 16/- per doz. tabs,
To Retail . . . 6/- per box of three tabs.
8. Bath Crystals
Wholesale 16/-, 28/- & 40/- per doz.,
To Retail . . . 2/-, 3/6 & 5/- each.



WE create the demand.

Can YOU meet it?

PARFUMERIE L. T. PIVER PARIS

London Depot : 102 Dean Street, Oxford Street, W.1.

Phone : Regent 5260.

An INTERNATIONAL COMMERCIAL AUTHORITY

It is generally recognised by all in pharmacy and the drug, chemical and allied trades that the only worth-while business journal for the retailer, the wholesaler, the manufacturer and the exporter is

THE CHEMIST & DRUGGIST

Perhaps, however, the international character of its business influence is not fully realised. So it will be of interest to subscribers and advertisers alike to learn that copies of THE CHEMIST AND DRUGGIST are BY REQUEST sent regularly to H.M. Trade Commissioners at—

Bombay
Calcutta
Cape Town
Johannesburg
Melbourne
Montreal
Sydney
Toronto
Port of Spain,
Trinidad

Wellington, N.Z.
Winnipeg
Guatemala, Mexico
(British Consulate)
Riga, Latvia
Vancouver, B.C.
Nairobi, Kenya
Colon
Moscow

THE CHEMIST & DRUGGIST is also dispatched regularly, in accordance with instructions, to the Commercial Secretaries of H.B.M. Legations at—

Berlin
Bern
Brussels
Bucharest
Budapest
Buenos Aires
Christiana
Constantinople
Copenhagen
Lège
Lima
Lisbon
Madrid
Oporto
Paris

Peking
Prague
Rio de Janeiro
Rome
Santiago
Shanghai
Stockholm
The Hague
Tokyo
Vienna
Warsaw
Washington
Yokohama
Zurich

Our Journal is also found a necessary part of the office equipment of Secretaries of British Chambers of Commerce at—

Alexandria
Athens, Greece
Baghdad
Basle, Switzerland
Basrah,
Persian Gulf
Belgrade,
Yugo-Slavia
Boulogne-
sur-Mer
Buenos Aires
Bushire, Persia
Cairo, Egypt
Constantinople
Genoa
Haifa, Palestine
Hong Kong

Jaffa, Palestine
Jerusalem
La Paz, Bolivia
Marseilles
Milan
Monte Video,
South America
Naples
Nice
Ottawa
Paris
Rio de Janeiro
Sofia, Bulgaria
Tangier, Morocco
Tunis
Valparaiso
Vienna, Austria

This striking proof of a world-wide acknowledgment of commercial standing and authority accounts in a great measure for the unassailable position of THE CHEMIST AND DRUGGIST as an ADVERTISING MEDIUM.

For all particulars regarding available space, special positions, coloured insets, etc., write to—

THE PUBLISHER

THE CHEMIST & DRUGGIST

42 CANNON STREET - - - LONDON, E.C.4

BRANCH OFFICES:—

49 County Buildings, Cannon Street,
MANCHESTER.

19 Waterloo Street,
GLASGOW.

54 Foster's Buildings, High Street,
SHEFFIELD.

And MELBOURNE and SYDNEY, AUSTRALIA.

NATIONAL HEALTH INSURANCE DRESSINGS

B.P.C. JULY, 1925, STANDARD.

BANDAGES.

Calico, bleached,
4 yd. × 2 in. 2½ in. 3 in.
per gross .. 21/- 27/- 30/6

Calico, unbleached,
per gross .. 17/6 22/- 26/-

Crepe, 33⅓% Wool,
2½/2¾ yd. × 2 in. 2½ in. 3 in. 3½ in.
per dozen 5/9 7/- 8/6 10/-

Domette, per dozen 6 yd. × 2½ in. 3 in. 8/6
7/-

Flannel, per doz. 4 yd. × 2½ in. 6 yd. × 3 in. 16/6
9/-

Open Wove, White Per gross.

3 yards × 1 in. .. 5/-

4 " × 1½ in. .. 8/6

4 " × 2 in. .. 11/-

4 " × 2½ in. .. 13/4

4 " × 3 in. .. 16/-

6 " × 4 in. .. 30/-

6 " × 6 in. .. 45/-

Plaster of Paris, per doz. 5 yd. × 5 in. 4 in. 14/- 17/6

Triangular, plain, per doz. .. 3/3

BORIC LINT.

1 oz. 2 oz. 3 oz. 4 oz. 6 oz. 8 oz. 1 lb.
per lb. 2/1 1/10 1/9 1/8½ 1/8 1/7½ 1/7

BORIC WOOL.

1 oz. 2 oz. 4 oz.
per lb. .. 2/2 2/- 1/10

COTTON WOOL.

½ oz. 1 oz. 2 oz. 3 oz. 4 oz. 6 oz. 8 oz. 1 lb.
per lb. 2/3 1/11 1/8 1/7 1/6½ 1/6 1/5½ 1/5

GAUZE TISSUE.

1 oz. 2 oz. 4 oz. 8 oz. 1 lb.
per lb. 2/3 2/1 1/11 1/9 1/8

GUTTA PERCHA TISSUE.

per yard .. 1/3

JACONET.

42/44 in. wide, per yard .. 1/9

LINT. Unmedicated.

1 oz. 2 oz. 3 oz. 4 oz. 6 oz. 8 oz. 1 lb.
per lb. 2/5 2/2 2/1 2/0½ 2/- 1/11½ 1/11

OILED CAMBRIC.

36 in. wide, per yard .. 1/8

OILED PAPER.

20 × 30 in., per dozen .. 1/-

OILED SILK. Green.

36 in. wide, per yard .. 3/-

STANDARD DRESSINGS.

	No. 1	No. 2
per dozen ..	2/3	3/6
per gross ..	26/-	38/-

TOW.

	½ lb.	1 lb.
Plain, per dozen ..	3/9	6/6
Carbolised ..	5/-	8/6

GAUZES.

	Per dozen packets.	6 yards.	3 yards.	1 yard.	½ yard.	¼ yard.
Unmedicated	..	8/9	4/9	1/10	1/-	7d.
Boric, 10%—15%	..	9/3	5/3	2/-	1/2	7½d.
Carbolic, 5%—6%	..	12/-	7/-	2/6	1/4	9d.
Iodoform, 4%—5%	..	9/3	5/3	2/-	1/2	7½d.
Picric, 1½%—2%	..	10/-	5/6	2/1	1/3	8d.
Sal Alembroth, ¾%—1%	..					
Sublimate, 1%—15%	..					
Double Cyanide, 2%—3%	..					

BUTLER & CRISPE

80-82 CLERKENWELL ROAD, LONDON, E.C.1

INDEX TO ADVERTISERS

Agfa, Ltd. (Photographic Chemicals)	14	Burrough, J., Ltd. (Alcohol)	Leader Page	Fairy Dyes, Ltd. (Home Dyes)	36
Alza Manufacturing Co. (Vanishing Cream)	xii	Burroughs Wellcome & Co. ("Sketofax" Aromatic Cream)	39	Farley, A., Ltd. (Shopfittings)	Col. Supp.
Anglo-American Pharmaceutical Co., Ltd. (Witch Hazel Jelly, &c.)	21	Bush, W. J., & Co., Ltd. (Ess. Oils, &c.)	Cover	Farmer, F., & Co. (Rat Poison)	28
Arc Animal Remedies Co.	36	Butler & Crispe (Dressings)	4	Farmer, Leopold, & Sons (Factory)	8
Arnfield, J. C., & Sons, Ltd. (Raspberry Vinegar)	iv	Butler, E. H., & Son (Essences)	18	Ferber, R., Ltd. (Lemon Juice Cream, &c.)	20
Association of Manfg. Chemists, Ltd. Col. Supp.		Camwal, Ltd. (Mineral & Aerated Waters)	30	Fink, F., & Co. (Gums)	28
Ayrton, Saunders & Co., Ltd. (Wholesale Druggists)	15	Cartwright, W. B., Ltd. (Moorland Tablets)	10	Flemmons, J., & Sons (English Herbs)	ii
Bandoeng Quinine Factories	vii	Cephos, Ltd. (Headache Remedy)	vi	Florian & Armand, Ltd. (Toilet Preps.)	22
Battle, Hayward & Bower (Weed Killers, &c.)	28	Christy, T., & Co. (Manicure Preps., Py-shan Points Tea)	22-28	Ford, Shapland & Co., Ltd. (Toilet Paper)	xx
Beecham Estates & Pills, Ltd. (Pills)	xi	Coleman & Co., Ltd. (Wincarnis)	31	Fox, Francis, F., & Co. (Oils)	8
Berdoe & Fish (Valuers, &c.)	Col. Supp.	Corkwood, Ltd. (Corks)	28	Fuller, R. L., & Co., Ltd. (Quinine Salts)	iii
Berg, E., Ltd. (Shopfittings)	Col. Supp.	Cowen, E., & Co. ("Dartring" Lanoline)	Leader Page	Gale, Lister & Co., Ltd. (Wines)	32
Blackie, Robert (Spun Ointments, &c.)	12	Cox, Arthur H., & Co., Ltd. (Zenda Moth Tablet)	Cover	Gardner, W., & Sons (Glos.), Ltd. (Machinery)	xvii
Boake, A., Roberts & Co., Ltd. (Aromatic Chemicals, &c.)	Leader Page	Cupal, Ltd. ("Secto")	7	Genoxide, Ltd. (Bath Powder, &c.)	viii
Bond, J. (London), Ltd. (Marking Ink)	36	Curasol Sock Co. (Boric Socks)	xxii	Gibbins, R., & Co. ("Constiplets, &c.)	vi-Leader Page
Brady & Martin, Ltd. (Galenicals, &c.)	v	Dearborn (1923), Ltd. (Toilet Specialities, &c.)	20	Glaxo (Glaxo)	Leader Page
Brett & Co.	Col. Supp.	Dee Oil Co., Ltd. (Petroleum Jelly)	xvi	Gledhill, G. H., & Sons (Total Adder, &c.)	xxii
Brewsters (Overalls)	12	Deshell Laboratories, Ltd. (Petrolagar)	xi	Gough, Kidston & Co. (Petroleum Jelly, &c.)	xiv
Bristow, T. F., & Co., Ltd. (Toilet Preps.)	19	DeVilbiss Co. (Sprays, &c.)	28	Gower, J. (Books)	Col. Supp.
British Drug Houses, Ltd. (Eastern Foam)	40	Dick, W. B., & Co., Ltd. (Liquid Paraffin)	xvi	Graesser-Monsanto Chemical Works, Ltd. (Phenol)	Cover
British Goodrich Rubber Co., Ltd. (Rubber Sundries)	xviii	Domen Belts, Ltd. (Surgical Belts)	xxii	Grout & Co., Ltd. (Crêpe Bandages, &c.)	xxii
British Industries Fair	13	Drake, Francis & Co. (Lavender Water, &c.)	24-25	Haller & Phillips, Ltd. (Glycerine)	ii
British Xylonite Co., Ltd. (Halex Toothbrushes)	27	Dudley & Co., Ltd. (Display Sets, &c.)	26-32-xxii	Hampshire, F. W., & Co., Ltd. (Flycatchers)	29
Britton, Malcolm & Waymark, Ltd. (Crêpe Bandages, &c.)	38	Duncan, Flockhart & Co. (Organotherapeutic Preps.)	ii	Hampson, Fredk. (Bottles)	34
Bromage, E. N., & Co. (Perfumery, &c.)	18	Eagle Photographic Service (Developing, &c.)	9	Harley, T. (Rat Poison)	29
Bruce, Dawson & Co., Ltd. (Bottle Caps)	34	Edwards, Wm., & Sons (Bickiepegs)	32	Heathman (Ladders, &c.)	33
Burge, Warren & Ridgley, Ltd. (Ointment Boxes)	xvii	Ensign Snapshot Service	14	Henry, T. & W. (Calcined Magnesia)	vii
Burkett, Sharp & Co., Ltd. (Chemicals)	ii	Evans, Norman, & Rais, Ltd. (Rasevan)	28	Heppells, Ltd. (Chatelain Remedies)	xiii
Burnet, A., & Co., Ltd. (Scitnug Sanitary Belt)	xxii	Evans Sons Lescher & Webb, Ltd. (Menthol)	xi	Hindes, Ltd. (Hair Brushes)	26
				Hobson, Trimble & Co., Ltd.	28
				Hollandsche Melksuikerfabriek	xii
				Hopkin & Williams, Ltd. (Chemicals)	iv
				Hubbuck, T., & Son, Ltd. (Oxide of Zinc)	vi

(Continued overleaf.)

OLDFIELD, PATTINSON & CO.

TELEGRAMS:
"OPIUM MANCHESTER"

TELEPHONES:
CITY 984 & 4038

Reliable House for all
Pharmaceutical Preparations

Concentrated
Waters.

Concentrated
Infusions.

Essential
Oils.

OPIUM
B.P. Tinct. Aqueous Tinct.

Liquid
Extracts.

Levigated
Ointments.

Syr. Glycero-
phos. Co.

"Silver Churn" Dairy Specialities.

MANCHESTER.

INDEX—cont.

INDEX—cont.

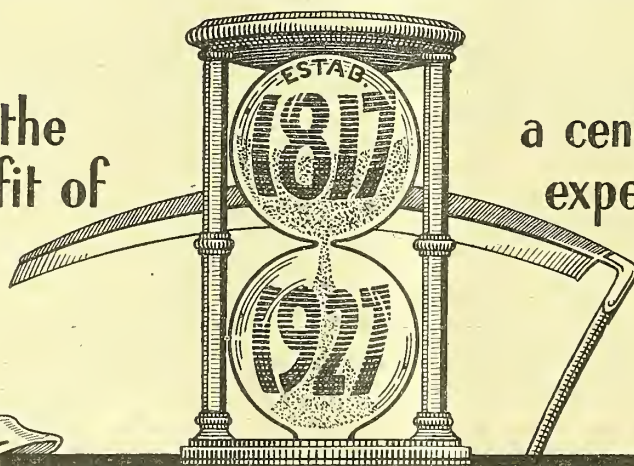
Iglodine Co., Ltd. (Iglodine)	x
Illingworth, T., & Co., Ltd. (Roll Films, &c.)	14
Ingram, J. G., & Son, Ltd. ("Agrippa" Teats, &c.)	xix
Johnson & Sons Mfg. Chts., Ltd. (Chemicals)	iii
Josephs, Percy R. E. (Shopfittings) ..	Col. Supp.
Josephs, Philip, & Sons, Ltd. (Shopfittings)	Col. Supp.
Kaylene, Ltd. (Kaylene Preps.) ..	xii
Kerfoot, T., & Co., Ltd. (Mineral Spring) ..	17
Kirby, Douglas & Co., Ltd. (Monkey Strip) ..	8
LePersonne, L., & Co. (Opal Glass) ..	34
Lever Bros., Ltd. (Glycerine) ..	iv
Lofthouse & Saltmer, Ltd. (Losalls Salt) ..	32
Lorimer-Marshall, Ltd. (Packed Goods) ..	9
Macfarlan, J. F., & Co. (Ethers, &c.) ..	Cover
McGlashan, D., Ltd. ("Abidine") ..	xii
Mandall & Co., Ltd. (Licoricine)	x
Martin, Bob, Ltd. (Dog Medicines) ..	29
Martindale, W. ("Aspriodine," &c.) ..	8
Matthews & Wilson, Ltd. (Tablets) ..	vi
Matthews Laboratories, Ltd. (Digitals) ..	Leader Page
Matthews, D., & Son (Shopfittings) ..	Col. Supp.
Maund, F. (Showcases) ..	xvii
Maw, S., Son & Sons, Ltd.	11
Maxwell, Plaistowe & Co., Ltd. (Sandalwood Oil) ..	18
Mcade-King, Robinson & Co., Ltd. (Petroleum Jelly, &c.) ..	xiv
Meggeson & Co., Ltd. (Dyspepsia Tablets) ..	i
Melin, C., & Co. (Flasks) ..	xx
Methylating Co., Ltd. (Methylated Spirit) ..	xv
Millar, A., & Co., Ltd. (Orange Wine) ..	33
Mills, A. J., & Co., Ltd. (Honey) ..	30

Morgan-Davis & Sons, Ltd. (Trusses) xxiii	
Mousley, F. (Sunray Puffs, &c.)	21
Napp, H. R., Ltd. (Cocaine, &c.) ..	vii
National Cash Register Co., Ltd. ..	26
National Union of Drug & Chemical Workers	Col. Supp.
Oldfield, Pattinson & Co. (Pharm. Preps.) ..	5
Oppenheimer, Son & Co., Ltd. (Robo-line) ..	33
Orridge & Co. (Valuers, &c.) Col. Supp.	v
Oury, Millar & Co. (Gelatines)	v
P.A.T.A.	viii
Paine & Co., Ltd. (Malt & Oil) ..	33
Parker, Ward & Co. ("Sulfuid") ..	x
Pazo Co. (Pill Boxes) ..	33
Pearlskin Preparations (Toilet Preps.)	22
Pearson, E. T., & Co., Ltd. (Amidol) ..	28
Pharmaceutical Lanoline Co. (Lanoline) ..	xv
Piver, L. T. (Toilet Specialities) ..	2
Poth, Hille & Co. (Ceresine Wax) ..	xiv
Potter & Clarke, Ltd. (Pills and Tablets, &c.) ..	37
Pulzer, S., & Son, Ltd. (Goggles) xxiii	
Rendell, W. J. (Quinine Suppositories) ..	xxviii
Ridge's Food Co. (Infants' and Invalids' Foods) ..	30
Roberts, A. (Non-Breakable Comb) ..	26
Roberts' Patent Filling Machine Co. xvii	
Robinson & Sons, Ltd. (Boxes)	xxiv
Rose, J. B., Ltd. (Pyrogallie Acid) ..	28
Rudduck & Co. (Shopfittings) Col. Supp.	
Sandoz Chemical Co., Ltd. (Alkaloids) ..	iv
Sangers (Sundries) ..	16
Sanitas Co., Ltd. (Toilet Paper) ..	Leader Page
Scruton, Oscar, & Co. (Nurse Harvey's Mixture) ..	9
Scurr, C. A. (Optical Tuiton)	9
Shadeine Co. (Hair Dyes) ..	26
Sherborne, T., & Co., Ltd. (Surgical Appliances) ..	28
Sherley, A. F., & Co., Ltd. (Dog and Cat Medicines) ..	36

Showcard Specialists, The	xvi
Smith & Co. (Fly Catchers)	28
Smith, J. M., & Co. (London), Ltd. (Olive Oil, &c.)	xii
Smith, T. & H., Ltd. (Chemicals) ..	v
Spahn, Johannes (Catgut)	xx
Squire & Sons, Ltd. (Books, &c.) Cover	xv
Sterns, Ltd. (Oils, Petroleum, &c.) ..	xv
Stevenson & Howell, Ltd. (Essential Oils, &c.)	1
Tatcho-Tone Co.	26
Taylor, Edward, Ltd. (Plasters)	xx
Temmler Chemical Works (Spton) ..	vii
Timpson, J., & Co., Ltd. (MacKenzie's Pills) ..	x
Town Talk Polish Co. (Polishing Cloths, &c.) ..	12
Truford, Ltd. (Foods) ..	30
Tunbridge & Wright (Flycatchers) ..	8
Veno Drug Co. (1925), Ltd. (Germolene Soap) ..	ix
Vinolia Co., Ltd. (Premier Soap) ..	23
Viscose Development Co., Ltd. (Bottle Cappings) ..	34
Wagner, R. V. (Bottle Caps)	34
Walden, E. M., Ltd. (Surgical Ware, &c.) ..	xxi
Warrington Chem. & Drug Co.	ii
Watts, J. (Safety Razor Blade Sharpener) ..	22
Webster, T., & Co. (Composition Stoppers) ..	34
Westminster College of Pharmacy ..	9
White, R. F., & Co., Ltd. (Toilet Soaps) ..	18
Wilkinson, Jas. F. (Printing)	6
Winchester Manfg. Co., Ltd. ("Wimaco" Surgical Goods) ..	xxii
Wood Bros. Glass Co., Ltd. (Glassware) ..	35
Woolons, C. (Developing, &c.)	28
Wyleys, Ltd. (Pharmaceuticals) ..	Cover
Zeal, G. H., Ltd. (Clinical Thermometers) ..	xxiii
Zeal's Asthma Fluid & Atomizer Co., Ltd.	xviii

Reap the
benefit of

a century's
experience!



WILKINSON'S LABELS

WRITE FOR SAMPLES
AND PRICES.

JAMES F. WILKINSON, PHARMACISTS' PRINTER, PENDLETON, MANCHESTER.

CUPAL NEWS

JULY 2, 1927.



Are you ready?

The "SECTO" Advertising Campaign which will cover nearly every district in the country commenced in April.

"SECTO" is one of your very best sellers without any Press backing, but with it there is no limit to the quantities you can get through. Your depleted stock can be renewed by simply dropping us a P.C.


Punctuality is the soul of business—DO IT NOW!

6 dozen bonus with 5 gross assorted.

1 dozen bonus with 1 gross assorted.

Sizes : 4d., 6d., 1/-, 3/-, 5/-

"Get it from your Chemist" is our 1927 slogan.

LIQUID "SECTO"	RETAIL		WHOLESALE	Less
	2/- tins	- -	16/-	
 FOR INGED INSECTS	(10 oz. with mouth spray)	- -	($\frac{1}{4}$ doz. Bonus with 3 doz.)	10%
	Handsprays	2/3	21/-	28
	Outfits	4/3 -	36/-	days

CUPAL Ltd. Blackburn.

"ASPRIODINE" (Reg. T. M.)

Ordered by
doctors
all the year
round.

THE new Aspirin compound, combining the therapeutic properties of Aspirin and Iodine in a stable, definite chemical combination. Of decided value in rheumatic affections and arterio-sclerosis, and wherever Iodides have proved beneficial.

"SEDASPRIN" (Reg. T. M.)

THE Bromine analogue is of value in all forms of nerve trouble, and in dysmenorrhoea, asthma, epilepsy, insomnia, neuralgia; in short, in all cases where the combined qualities of Aspirin and Bromide are indicated.



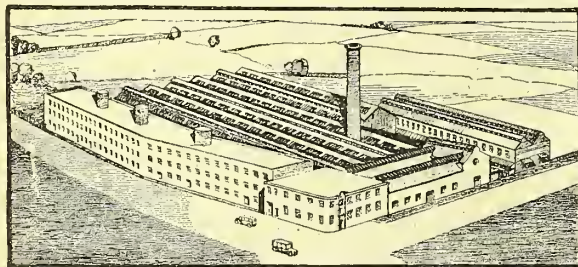
W. MARTINDALE (MANUFACTURING CHEMIST)

Telegraphic Address: "MARTINDALE, CHEMIST, LONDON."

10 New Cavendish Street, London, W.1

Telephone Nos.: LANGHAM 2440 & 2441. 5

Extensive Newly-built Freehold Waterside **MANUFACTURING PREMISES** at **Lowestoft, Suffolk**. With frontage to the deep-water harbour. Berthing accommodation for steamers. L. & N.E. Railway sidings run into works. Large supply of electric power & cheap labour. Low freightage & railway rates.



The **Substantially Constructed Factory** is well lighted, and contains over 300,000 sq. ft. of **Floor Area**, half of which is on the ground floor. It is equipped with modern power plant, ready for immediate occupation, and capable of housing an extensive business. The site area of works and additional land is 12½ acres. Plans, particulars and order to view of:—

LEOPOLD FARMER & SONS,

Factory Specialists, Auctioneers and Surveyors,
46 Gresham Street, Bank, E.C.2 and Kilburn, N.W.

FRANCIS F. FOX & CO.
BRISTOL

LINSEED OIL
TURPENTINE
FINE OLIVE OILS
COPPER SULPHATE
CRUSHED LINSEED

&c.

PRICES ON APPLICATION.

Telegrams: "Fox, Bristol." Telephone: Bristol 19

THE STICKIEST STICKER EXTANT

Satisfy the needs of your customers by supplying them with a Fly Catcher upon which the flies **WILL** really stick and **NOT** drop off.

The "Cemetery" brand of Fly Catchers manufactured by us have now a reputation of over 40 years and are acknowledged to be the most efficacious on the market. They are also guaranteed to be of **BRITISH MANUFACTURE**.

Prices on Application:

TUNBRIDGE & WRIGHT, READING

Tel. Add. "Flies, Reading." Phone: 496 Reading

If you don't stock it—you're money out-of-pocket.

This famous little device, quite the best form of strop on the market to-day, makes a strong appeal on account of its low price. In its handsome nickel-plated case it only needs to be displayed on your counter to sell by the dozen—and every sale means 1/9 profit!

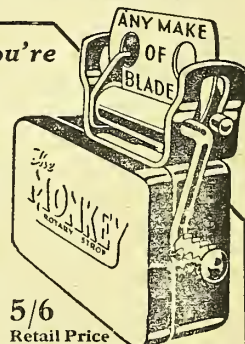
Sales matter and particulars of this and other fast-moving Douglas Kirby lines on request. Obtainable from your usual wholesaler, or direct.

Complete range of factorial lines. Write for list.

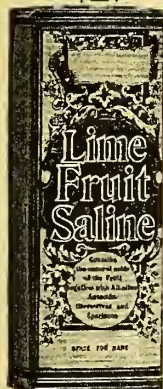
DOUGLAS KIRBY & CO., LTD., 9/10 CHARING CROSS, LONDON, S.W.1.

Glasgow

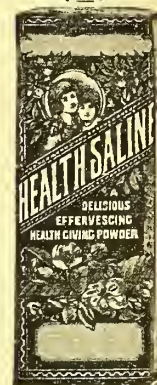
Telephone: Gerrard 3147, 8c63/4/5.
47 Oswald Street, C.1.



Lorimer-Marshall, Ltd. for PACKED GOODS



Granular Effervescent Citrate of Magnesia
 Seidlitz Powders (Plain and Lemon Flavoured)
 Health Salt Salines
 Compound Syrup of Hypophosphites
 Blood Purifier Tonic Elixir
 Children's Tonic



AT KEENLY COMPETITIVE PRICES.

LORIMER-MARSHALL, LTD. 12 Tower Hill, London, E.C.3

Works Telephone : New X 2119.

Telegrams : "Lorimarsco, Bilgate, London."

WESTMINSTER COLLEGE OF PHARMACY.

WILLS' UNIVERSAL POSTAL SYSTEM

FEES (BRITISH ISLES)

PRELIMINARY SCIENTIFIC COURSE	-	£1 1 0
QUALIFYING COURSE	- - - -	£1 1 0
COMBINED COURSE	- - - -	£1 11 6
APOTHECARIES' HALL COURSE	- - - -	£1 1 0

POSTAL COURSE PROSPECTUS POST FREE
 from The Secretary,

190 CLAPHAM ROAD, S.W. 9.

MANY SUCCESSES IN THE EXAMINATIONS

Your Opportunity to

QUALIFY IN OPTICS

PRACTICAL WORK. Students taking the course may receive personal tuition in the practical work AT ANY TIME DURING THE COURSE.

Expert Tuition for the SIGHT-TESTING DIPLOMAS of the Worshipful Company of Spectacle Makers (F.S.M.C.); the British Optical Association (F.B.O.A.); the National Association of Opticians (F.N.A.O.); or the College of Optics (F.C.O.).

Write for full particulars—

G. A. SCURR, M.P.S., F.S.M.C., F.B.O.A., F.N.A.O., B.Sc., F.I.O., F.C.O.
 50 HIGH STREET, BARNET, LONDON, N.
 S.A. Representative: I. E. G. WOOLLEY, F.S.M.C., M.P.S., c/o H. Neil & Co.
 215 Bree St., Johannesburg.
 N.Z. Representative: R. C. AITCHISON, Box 156 PALMERSTON, North.

NURSE HARVEY'S MIXTURE

A safe, simple and reliable remedy for Children's Ailments is advertised so extensively in the daily and weekly Press as to bring mothers to the retailer without effort on his part.

The selling has been done before the mother reaches the chemist, and, having supplied her, it is only common sense to claim she will buy other family necessities from him. Moreover, the continuous demand for it produces a quick turnover.

For Direct Terms apply to—

OSCAR SCRUTON & CO., YORK

THE EAGLE PHOTOGRAPHIC SERVICE

Before fixing up your firm for D. and P. and enlarging this season be sure and examine particulars of our service. We offer:—

5
 points to
 consider

THE FINEST QUALITY;
 PRICES WHICH SAVE YOU
 MONEY;
 PROMPT DESPATCH;
 ADVERTISING SCHEME;
 COMPLETE SYSTEM.

WE BELIEVE OUR SERVICE IS THE FINEST
 VALUE OFFERED IN THE COUNTRY.

12 WOOD STREET, SWINDON, WILTS.

WE AGAIN
STATE MOST EMPHATICALLY
that
MOORLAND
HEART SHAPE TABLETS

**ARE THE MOST PROFITABLE
& QUICKEST SELLING DIGESTIVE
TABLET ON TO-DAY'S MARKET**

*The sales are growing by leaps and
bounds. Put a display in your window
now—it's a great chance to secure a
regular and handsome weekly profit*

ORDER NOW

**to be out of stock means a loss
of good profits and goodwill**

*An abundant supply of good show matter with every order.
Write us to-day—and get busy.*

W. B. CARTWRIGHT LTD. RAWDON NEAR LEEDS

Maw's



Page

Selling a "Meritor" Tooth Brush is a Matter of Seconds.

You know far better than we can tell you the difficulty of pleasing all your customers when you are selling a tooth brush.

Some want a large brush, some want a small one. Some prefer a straight, others a bent handle. One likes a soft brush, another a hard one. Each customer has his, or her, own likes and dislikes, and the pharmacist has the problem of pleasing them all.

"Meritor" tooth brushes will help you to do so without difficulty. There are four distinct patterns and nine different sizes in the "Meritor" series, so that you can meet any reasonable demand.

All the patterns and sizes are displayed attractively in the "Meritor" Case, which stands on your counter and occupies only a space 12 in. by 17 $\frac{3}{4}$ in. The case also carries your stock, so that you can start and complete a "Meritor" sale without leaving the counter. Selling a "Meritor" tooth brush is a matter of seconds, and every customer is a satisfied customer. The definite guarantee ensures this.

*Put the "Meritor" case on your counter to-day. It
will pay handsomely for the space it occupies.*

**S. Maw, Son & Sons, Ltd.,
Aldersgate St., London,
and Barnet.**



FOR REPEAT SALES

GET
YOUR CREAMS, OINTMENTS "SPUN"
and PACKED GOODS

FROM

ROBERT BLACKIE MANUFACTURING
CHEMIST

(Inventor and Proprietor "Spun Ointments.")

SHEN WORKS, TOWER BRIDGE ROAD, LONDON, S.E.1

Telephone: HOP 2415.

Telegrams: "USHENSPUNA, LONDON."

SEASONABLE NOW

Face Powders.
Tooth Powders.
Tooth Pastes.
Nursery Powder.
Fullers Earth.
Violet Powder.

"Nuxocol" Hair Preparations.
Shampoos, etc.,
Lime Creams.
Brilliantines.
Pomades.

Bath Crystals.
Nail Polish.
Cuticle Remover.
Salines.
Citrate of Magnesia.

SAMPLES AND PRICES ON APPLICATION.

The excellence of

any article lies in the efficiency with which it performs its functions, and articles manufactured specially for one purpose are more efficient than those "Jack-of-all-trades" for which exaggerated claims are made.

THAT IS WHY THE

TOWN TALK LIQUID SILVER POLISH & SILVER PLATE CLOTH

have, for over 20 years, earned tribute from craftsmen in silverware, and to-day for cleaning and polishing silver and E.P. Ware, are most in demand by discriminating housewives.

"Town Talk" is prepared specially for cleaning and polishing Silver and E.P. Ware. It does not contain acids, grit or ammonia. It is harmless to the finest surface and indiscribably easy and clean to use.

Silversmiths and Housewives say "Town Talk" is unrivalled.

Do you sell "Town Talk"?

It yields a generous profit.

ORDER FROM

J. WOOLLEY, SONS & CO., Ltd., MANCHESTER.
AYRTON SAUNDERS & CO., Ltd., LIVERPOOL.
EVANS SONS, LESCHER & WEBB, Ltd., LIVERPOOL.
MAY, ROBERTS & CO., Ltd., LONDON.

Samples for free distribution, and full propaganda matter from the sole makers:

Town Talk Polish Co.

(SERVICE DEPARTMENT),

Whitby St., Bradford Road, Manchester.



WE SPECIALISE IN

OVERALLS

FOR

ALL TRADES AND PROFESSIONS

(EVERY GARMENT
GUARANTEED)

White Drill Jackets from 6/6

White Drill Coats „ 8/11

Khaki Drill Coats „ 10/6

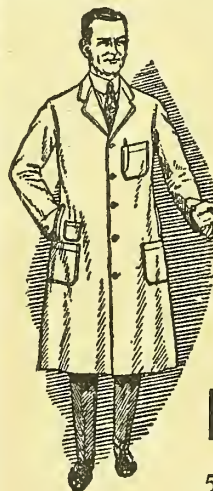
Black Drill Coats „ 12/6

Grey Drill Coats „ 12/6

LARGE VARIETY of STYLES
and SIZES Always in Stock
for Immediate Wear.

ANY STYLE OF GARMENT
MADE TO ORDER.

Illustrated Catalogue Free
on request.



BREWSTERS

(FORMERLY PECKS)

53 & 55 BYROM STREET,
LIVERPOOL.

SPECIAL QUOTATIONS for LARGE QUANTITIES

Feby. 20
to
March 2



1928

THE
**BRITISH
INDUSTRIES FAIR**

will again be held at the
**WHITE CITY, LONDON &
CASTLE BROMWICH, BIRMINGHAM**
FEBRUARY 20th to MARCH 2nd
1928

MANUFACTURERS

Make a point of showing *your* goods there
next year. The Fair will be larger than ever.



APPLICATIONS FOR SPACE

should be made at once to

**THE DEPARTMENT OF OVERSEAS TRADE,
35, OLD QUEEN STREET, LONDON, S.W.1,**

or to

**THE SECRETARY,
CHAMBER OF COMMERCE, BIRMINGHAM.**

DEALERS!

STOCK and recommend the Fast Film in the Bright Blue Box. Its exceptional speed, quality and mechanical perfection make it easily the amateur's favourite. We will help your sales by our striking Press advertisements and "Sunny Smile" Competition. This film is a British product made by

Illingworth's

DISPLAY & RECOMMEND ENITONE & SLÖGAS

THOMAS ILLINGWORTH & CO., LTD.,
PARK ROYAL, WILLESDEN JUNCTION, N.W.10.

PHOTOGRAPHIC CHEMISTS

For particulars of an efficient

DEVELOPING AND
PRINTING SERVICE

Write to :



WALTHAMSTOW, E.17

AGFA FILMS
AGFA PACKS
AGFA PLATES
AGFA CAMERAS
AGFA CHEMICALS

Sole Agents :

Agfa
Ltd.
91 New Oxford St., London, W.1

Free jars



These jars help your display—
display sells the goods, and we
bear the cost. When empty the

jars are suitable for a variety of
purposes, e.g., Soaps, Powder
Puffs, Combs, Brushes, &c.

Free Jar with

Per lb.

7 lbs.	Antiseptic Throat Pastilles	3/1, 2/9
7 "	Bismuth Lozenges	3/1
7 "	Bismuth Indigestion Tablets	2/0
7 "	Bismuthated Magnesia & Mint Tablets	2/9
7 "	Brompton Lozenges	1/11
28 "	Candies (Cough, Cream, Mint, Lime Fruit, Lime Juice ^{and Sulphur})	1/2
16 "	Cherry Pastilles (Dr. Monroe's)	1/7
7 "	Fragrant Cachous	2/5
7 "	Formalin & Mint Tablets	2/0
7 "	Glycerine Pastilles	3/3
7 "	Glycerine & Black Currant Pastilles	3/3
16 "	Glycerine, Honey & Lemon Pastilles	1/7
7 "	Iodised Throat Tablets	2/10
16 "	Mixed Fruit Pastilles	1/7
7 "	Licorice & Menthol Pellets	4/0
7 "	Peppermints	3/0
7 "	"Pinettes"	2/0
7 "	Sore Throat Tablets	3/0
28 "	Sulphur Tablets	1/0 28-lb. lots 1/2 7-lb. lots

AYRTON, SAUNDERS & CO. LTD.
34 HANOVER STREET LIVERPOOL



The Search for Gold-----

In the Dark Middle Ages in Europe, it was the Monks who mostly occupied themselves with alchemy. They ignored much of the valuable work of the Arabs and concentrated upon attempting to convert inferior metals into gold.

IT'S IN THE MARKET NOT THE MORTAR that the solution of this age-old riddle is to be found.

Many of us fail to see that what was an impossibility in those far off days, is happily being achieved under our very noses.

Method will always prevail against madness.

A few coppers turned over enough times at the right profit quickly turn into Silver, and from Silver into Gold.

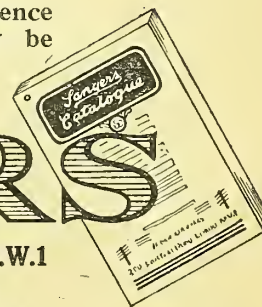
The right profit is ascertained by reference to the right catalogue, which can only be obtained from—

SANGERS

258 EUSTON ROAD - - - LONDON, N.W.1
& OLD INFIRMARY BUILDINGS, NEWCASTLE-ON-TYNE

Telegrams: "Pharsalia, Phone, London."

Telephone: Museum 5440 (Pte. Exch.)





To help your Sales of

MINERAL SPRING

EFFERVESCENT HEALTH GRANULES

THESE attractive four-page leaflets, printed in two colours, are now available to aid your sales of the Chemists' Own Effervescent. While the supply lasts 100 copies are sent on request, with orders up to 6 dozen 1/- bottles; over 6 dozen, 250 copies; over 1 gross, 250 copies per gross. Name and address can be printed on quantities of 250 and upwards.

It pays to specialise in "Mineral Spring." Every effort made on its behalf builds up your own goodwill. The customers you make for "Mineral Spring" are really and truly your own customers for they must come back to you for further supplies.

Trade Prices: (P.A.T.A.) 1/- size, 8/- dozen. 2/- size, 16/- dozen. 1 gross, 7/9 and 15/6 dozen.

THOMAS KERFOOT & CO LTD.
BARDSLEY VALE, LANCASHIRE,
& Bardsley House, London, N1
ESTABLISHED 1797.

B/91

COPYRIGHT

"PLAIMAIR"

OIL OF SANDALWOOD

(*Santalum Cygnorum*)

Alcohol contents : 93/95%

Pronounced equal therapeutically and superior physiologically to Oil of Santalum Album. Guaranteed pure, genuine and free from any adulteration.

Distilled by
PLAIMAR LTD.
PERTH
W.A.

European Agents: *Maxwell, Plaistowe & Co., Ltd., 8 Old Jewry, London, E.C.2.*

Paris Address: *Etablissements Plaistowe 11 bis, Rue Volney.*

ESSENCES FRUIT AND ARTIFICIAL

Inquiries are specially invited for the following:—

VANILLA from Selected Beans.

VANILLA from Vanillin.

PEPPERMINT—B.P. Oil.

PINEAPPLE—Artificial.

RASPBERRY—Fruit and Artificial

E. H. BUTLER & SON MANUFACTURING
— CHEMISTS —
Humberstone Gate - - LEICESTER



BORONIA

THE NEW PERFUME FROM THE AUSTRALIAN FORESTS WHICH HAS PROVED SUCH A SUCCESS ON THE CONTINENT.

Sample Size **1/3 10/-** Doz.
(10% for Window Display on Direct Orders).

E. N. BROMAGE & CO.
Perfumers and Importers.
73 SELHURST ROAD,
LONDON, S.E.25.

A NEW BATH SOAP FOR YOU!

R. F. WHITE
& Co., Limited

Victoria Station
House

LONDON, S.W.1

4-ounce Rounds. Assorted perfumes packed in one dozen white enamel boxes.

Price **30/-** Carriage paid on one gross or over.
2½% discount for cash in 14 days. Free Cases.

A PRICE LIST OF OUR OTHER SOAPS ON REQUEST.



BRISTOW'S
Devonshire Violets
TOILET SOAP

Daintily wrapped and
 packed. Three Tablets
 to the Box.

THE name for consistent high quality and absolute purity enjoyed by Bristow's Toilet Preparations for 150 years is fully upheld by Bristow's "Devonshire Violets" Series.

Bristow's "Devonshire Violets" Toilet Preparations not only ensure perfect consumer-satisfaction because of their undoubted purity and moderate prices, but give the chemist an excellent margin of profit.

If you are not already taking advantage of the opportunities offered by this attractive series, write to-day for full particulars of special Window Display Terms.

BRISTOW'S
DEVONSHIRE VIOLETS

Toilet Soap.	Compact Powder.
Perfumes.	Shampoo Powder.
Face Cream.	Bath Crystals.
Brilliantine.	Face Powder.
	Talcum Powder.

T. F. BRISTOW & CO. LTD.
 Colindale, Hendon. N.W.9.

ROBERT FERBER, LIMITED

Sole Agents in the United Kingdom for

SALOMON'S

GENUINE

LEMON JUICE SOAP

No. 548.

Packed in boxes of 3 tablets.
24/0 per dozen boxes.

Minimum retail price,
2/9 per box. 1/0 per tablet.



LEMON SHAMPOO. 550

Compact Shampoo tablets containing pure Lemon Juice. Each tablet in a separate carton with directions. Packed in attractive show outers of 3 doz. tablets.

Retail price, 4d. per tab. 2/8 per doz. tab.

Showcards and Price Tickets Free.
All these lines are on P.A.T.A.

LEMON JUICE CREAM THE NEW SKIN TONIC.

A superior toilet cream, non-greasy, suitable for both winter and summer use, which enjoys a ready sale wherever introduced. Packed in opaque porcelain jars, each in a decorated Carton.

10/6 per dozen jars.

Minimum retail price, 1/6 per jar.

Carlton Works, ASYLUM RD., LONDON, S.E.15

MERCOLIZED WAX

— : for the Complexion : —

and

STALLAX

— : a Shampoo : —

TWO substantial and well-advertised lines which show a handsome profit to the Retailer, and, moreover, may be stocked fearlessly owing to the Manufacturers' most liberal Sale or Return Guarantee.

Both are obtainable in two sizes, and their reputation and sterling value assure a steady turnover.

Order through your Wholesaler, or direct from:

DEARBORN (1923) LIMITED

37 GRAY'S INN ROAD,

LONDON, W.C.1.



HUXLEY'S

WITCH HAZEL JELLY

Preserves the Youth & Beauty of the Skin
Keeping away Roughness & Redness

INVALUABLE IN SUMMER FOR MIDGE BITES, STINGS, ETC.

Bringing New Clients to your Pharmacy

We offer to send to FIFTY Lady Clients in your district, a Free Sample package of

HUXLEY'S WITCH HAZEL JELLY

with your address slip attached and include any small literature of your own.

The above preparation is one of EXCEPTIONAL MERIT AND SELLING POSSIBILITIES.

Write for a sample to be posted on to you for examination.

This offer is conditionally you buy from us not less than 1/2 dozen 1/- tubes, post free. A facsimile show card will be sent with all opening orders, post free.

Price of Selling Packages - 1/- and 2/6.

Wholesale - - 8/- and 21/- doz.

Bonus of 1 dozen on all gross lots.

Window Display Material offered to those who are interested.

ANGLO-AMERICAN
PHARMACEUTICAL
COMPANY LTD.,
DINGWALL ROAD,
EAST CROYDON.



Important Announcement

Trade Prices remain
the same.



MOUSLEY'S Sun-Ray (Trade Mark) PATENTS

Gifts absolutely free
and at our expense.

As from July 1st all Refills supplied for Mousley's Patent Powder Puffs will contain coupons which may be exchanged for attractive free gifts. Mousley's two brands Wilderness Sun-Ray and Super-Sun-Ray are real face powder values. Scientifically produced and blended in our own Factory. The last word in face powder values.

Send Post Card for particulars and free sample. Call your customers' attention to the scheme and get the business early—Sure profits.

FRANK MOUSLEY, Wilderness Works, Sheen, London, S.W.14

L'ONGLEX Manicure Preparations

L'Onglex Permanent Nail Varnish Retail @ 6d.

L'Onglex Cuticle Remover - , @ 6d.

L'Onglex Combination Set - , @ 1/-

are now obtainable through

Messrs. THOS. CHRISTY & CO.

4/12 Old Swan Lane,
LONDON, E.C.4

IT PAYS
to
Recommend
ARMAND

Send for latest list
and particulars of
Armand Advertising.

Florian & Armand
Limited
QUEENSWAY, PONDERS END
MIDDLESEX.

PEARLSKIN PREPARATIONS

VANISHING CREAM	BEAUTY POWDER	BATH CRYSTALS
in Handsome Frosted Opal Pot.	in Artistic Dres- sing Table Box.	in 16-oz. Bottle.
2/6	2/6	2/6

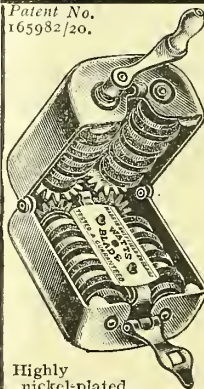
Wholesale 21/- doz. (Subject).

Window Display, 10% Bonus on direct orders.

Trade Enquiries—

PEARLSKIN PREPARATIONS,
(Dept. T1), 152 NEW BOND ST., LONDON, W.1.
Agency applications entertained where not at present
represented.

Patent No.
165982/20.



A REMARKABLE BRITISH INVENTION
THE

"SPIRO"
SAFETY RAZOR BLADE SHARPENER.

Every user of the "Watts" Safety Razor
Blades is a potential purchaser.

— STRONG AND SIMPLE —

No troublesome fixing. Drop blade on
two pegs, close box, turn handle and
= get a super-keen blade in a moment. =

Retails at 21/- each.

Suitable for any Gillette Type or
Watts Auto Strip Type Blades.

Allowing 50% profit on cost for the dealer.

Sole Manufacturer:

JOHN WATTS, Lambert Works, SHEFFIELD.
London Office & Showroom:
18 Soho Square, W.1. 'Phone: Gerrard 1306

Highly
nickel-plated.

Vinolia
PREMIER SOAP
The most refreshing soap in the world

Pure joy! Your skin glowing with life, bathed in clean fragrance you must know the delight the zest of Vinolia. No ill-humour lurking in the skin can escape its breezy lather. Such invigorating cleanliness! Such reviving freshness!

Price 1/6
Bath soap 12oz

6d

Vinolia
PREMIER SOAP
The most refreshing soap in the world

Compound! What a deep refreshing draught of moisture and pure air for your skin! What sweet fragrance for your cheeks! Vinolia there's the answer! Your choice is Vinolia—life for your skin—let Vinolia bring to you the freshness to your complexion.

Price 1/6
Bath soap 12oz

6d

Vinolia
PREMIER SOAP
The most refreshing soap in the world

Good to be alive! To feel life glowing through a face that health, Vinolia, you can't resist! How fresh and the joy of clean skin! The fragrance of Vinolia—clean, fresh, and the joy of clean skin! The fragrance of Vinolia—clean, fresh, and the joy of clean skin!

Price 1/6
Bath soap 12oz

8d

VT 27-29-60

Freshness—life—vitality!

They are here—interest-creating, “speaking” likenesses of real human beings—in these widely broadcast Vinolia advertisements. This campaign is impressing the public everywhere with the name of Vinolia Premier—and telling why it is “the most refreshing soap in the world.”

Vinolia sales are steadily climbing. And you should be getting your share of the increased profits. We send a striking three-panel window display screen with orders for two gross, toilet size.

Vinolia
PREMIER SOAP
The most refreshing soap in the world.

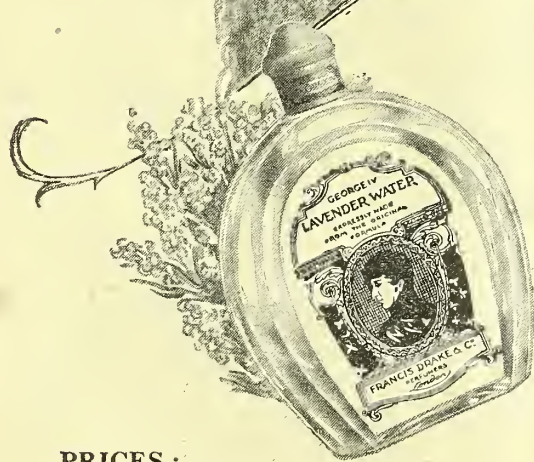
Write for special terms—Vinolia Co. Ltd., Bebington, Cheshire

GEORGE IV

*Lavender
Water*



*What wondrous charm
A surging tide of mist-blue flow'rs,
Flooding the warm, enchanted hours
With perfume—mystic balm.*



PRICES :
4d., 10d., 1/6, 2/8,
5/-, 8/6, 15/6, 22/6,
28/-, 52/-

Sole Proprietors :

FRANCIS DRAKE & CO.

Perfumers

1 EDEN STREET, HAMPSTEAD, LONDON, N.W.1

THE delicate perfume of the "mist-blue flowers" has been popular for centuries. In the luxurious Court circles of George IV they followed the King's example and scented their exotic toilettes with the subtle odour of lavender water.

The secret formula of George IV Lavender Water is the same as that which they used in the long-past days of the "First Gentleman in Europe." To-day it is made at Mitcham, where the blue fields of lavender flowers thrive so wonderfully. The result is an elegant, charming perfume of lavender which is unique in its refreshing fragrance.

The smart woman of discretion to-day chooses her lavender water very carefully, and therefore always selects George IV Lavender Water, as it is the quintessence of lavender.

Prices of George IV LAVENDER WATER

Sold in Bottles at

4d. 10d. 1/6

2/8 5/- 8/6

15/6

etc., etc..



Wholesale Prices

2/8 6/8 12/-

21/4 40/- 68/-

120/-

per doz.

*Keep George IV LAVENDER WATER in stock.
You will be asked for it.*

*Further information from the Sole
Proprietors,*

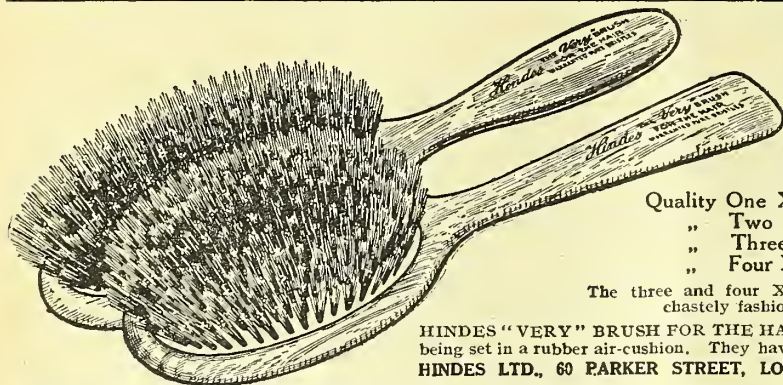
FRANCIS DRAKE & Co.

Perfumers

1 Eden Street, Hampstead Rd.

LONDON, N.W.1





HINDES "VERY" HAIR BRUSH

Quality One X	Sold at 7/6d. each.	TRADE PRICE 33 1/3%
" Two XX	" 10/6d. "	
" Three XXX	" 15/- "	
" Four XXXX	" 18/6d. "	

The three and four XXXX grade is made in Ebony or Rosewood chastely fashioned in both oval and circular bodies.

HINDES "VERY" BRUSH FOR THE HAIR is guaranteed pure bristles, the multiple tufts being set in a rubber air-cushion. They have been known to the trade for nearly 40 years.
HINDES LTD., 60 PARKER STREET, LONDON, W.C.2. Works: BIRMINGHAM

SCURF AND NITS

ROBERTS' "Non-Breakable" fine
METAL TOOTH COMB

Removes Nits, Scurf, Dust, etc.

Positively the Cheapest Comb of its kind ever known.

ENTIRELY BRITISH MANUFACTURE.

Retail 1/6 each; Wholesale 12/- dozen.

Minimum Quantity Supplied, 1 dozen in a Box.

OBTAINABLE FROM ALL WHOLESALERS.

A. ROBERTS, Sole Distributor,
13a Blackstock Road - LONDON, N.4.



GREY HAIRS

← appear just here.

TOUCH THEM UP WITH

TATCHO-TONE

and they will instantly recover their natural shade. Medical Guaranty with each bottle. Chemists' Prices 2/6 and 4/6

TATCHO-TONE CO., 5 Great Queen Street, London, W.C.2

Trial Philal
8^D
Post Free



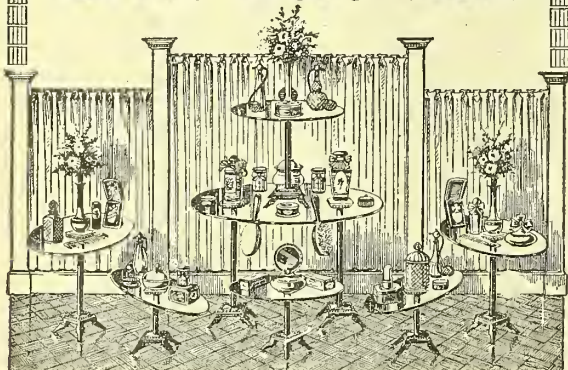
SHADEINE

For COLOURING GREY HAIR

This popular article is largely advertised and stocked by all Wholesale Houses.
Trial size 8d. per doz. 6/-
1/4 size, per doz. 12/-
2/6 size, per doz. 24/-
3/9 size, per doz. 36/-

The SHADEINE CO., 58 Westbourne Grove, London, W.2.

Effect more Sales



The 'Ellesmere' Display Set 32/-

No. C.D.F. 2329 comprising

8 Beautifully finished Copper Oxydised Pedestals,
2 12-in. high, 3 9-in., 3 6-in. 7 Plate Glass Ovals,
1 18-in. by 12-in., 3 12-in. by 9-in., 3 11-in. by 5-in.

32/- Complete.

Price quoted does not include Vases or Flowers.

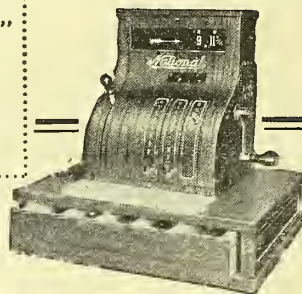
Our new 160-page Catalogue No. C.D. 970 illustrating every conceivable idea in Stands for Window Dressing, Stationery, etc., etc., will be sent free on request.

DUDLEY & COMPANY, LIMITED

558/576 HOLLOWAY ROAD, LONDON, N.7

City Showrooms - 65 FORE STREET, E.C.2

This "National"
and any other
model can
be secured
on easy terms
of payment.



The Price
of this
New Model

NATIONAL CASH REGISTER

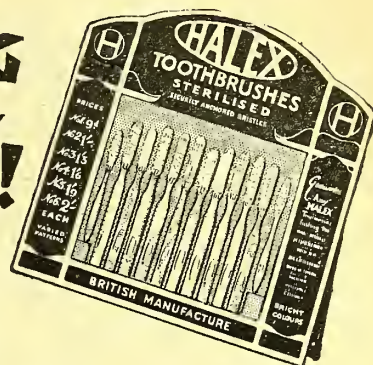
is only **£19** (5% discount
for cash)

Records sales from 1d. to 9s. 11 1/2d. Amount of each sale clearly indicated back and front. All sales automatically added into one total. Large well made cash drawer opens automatically. Bell rings when register is operated. Quick and easy to use. Modern steel cabinet, best mahogany finish.

Write for further details (Dept. C&D)

The National Cash Register Co., Ltd.,
225 Tottenham Court Road, London, W.1

THE PUBLIC ARE LOOKING FOR THIS HALEX SHOW-CASE ON YOUR COUNTER!



In the big advertising drive which through the national press is bringing the name of Halex before millions of people in England, we are telling the Public that the famous red and gold Halex showcase is "on the Chemist's counter."

Are your stocks large enough to meet the business which this campaign will bring to you? Have you taken advantage of our "Introductory Parcel." If not, you will be losing sales; for Halex is a household word to-day, and Halex toothbrushes (on which you make a clear profit of 60%) are the brushes which sell.

See that the Halex showcase is on your counter, the Public are looking for it.

SPECIAL INTRODUCTORY PARCEL

Our famous Introductory Parcel is designed to introduce Halex toothbrushes to the Chemist, without the Chemist having to lay in large stocks until he is sure of his sales.

The parcel contains:

(a) A handsome glass-fronted display case containing 12 Halex brushes (two of each pattern); (b) Three dozen Halex brushes in six handy boxes — making four dozen brushes in all; (c) A supply of specially designed envelopes for handing Halex toothbrushes to your customers; and (d) a showcard for window display. It only costs **40/-**

and yields a profit of *one pound six shillings*

HALEX

SIX PATTERNS SIX PRICES SIX COLOURS

BRITISH MADE THROUGHOUT

THE BRITISH XYLONITE CO LTD HALE END LONDON E.4



BATTLE'S

SPECIAL PACKED
LINES FOR
SUMMER TRADE!

Sheep Dips

Disinfectants

Lysol

LICE TOBACCO POWDER

CATTLE MEDICINES

WEED KILLERS (*Poisonous and Non-Poisonous*) LAWN SAND

DOG PILLS AND SOAP

ATHLETE'S EMBROCATION

High-class attractive decorated tins and cartons. "Agent's own name." Write for List.

BATTLE, HAYWARD & BOWER, Victoria Chemical Works, Lincoln.

FRED^K. FINK & CO.

10 & 11 MINCING LANE, LONDON, E.C.3.

GUMS, ARABIC and TRAGACANTH as Imported or
Finely Powdered. :: SHELLACS ALL GRADES.

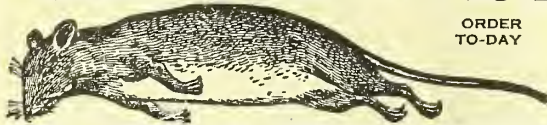
PEARSON'S BRITISH

AMIDOL.

PURE WHITE CRYSTALS
FREE FROM OXIDATION
Enquiries Invited
Samples on Application

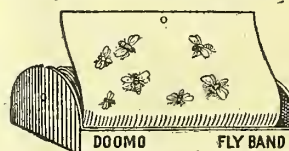
Manufactured by
E. T. PEARSON & CO. LTD.
35, GORDON SQUARE, W.C.1.
AT THEIR WORKS
MITCHAM, Surrey.

DEAD RATS AND LIVE PROFITS by pushing
FARMER'S "BAITED" RAT PASTE



ORDER
TO-DAY

FREDK. FARMER & CO., 1a College Lane, LONDON, E.9



**THE DOOM
OF THE FLY**

"DOOMO" FLY BAND,
wide and long,
also narrower one.

SMITH & CO.,
Doomo Works, NEWARK.

RASEVAN THE
(REGD.) MOTH KILLER

RETAILS AT 1/- PER BLOCK.

For Trade Terms apply—

Norman Evans & Rais Ltd. 60 ELLESMERE STREET,
HULME, MANCHESTER.

CORKS OF EVERY
DESCRIPTION.
Ask for Price List.

Compressed Bath Mats and Table Mats.

CORKWOOD LTD., 32 York St., MANCHESTER

Hobson's Choice
FEET POWDERS
LAISTERS
From the usual
Wholesalers or
direct—
**HOBSON,
TRIMBLE
& CO. LTD.**
11 Union St.,
LEEDS.

T. SHERBORNE & CO., LTD.

Surgical Appliance Manufacturers,

ABDOMINAL BELTS, SPRING TRUSSES, ELASTIC
BAND TRUSSES, SUSPENSORY BANDAGES, &c.

Phone: Syd. 517.] Wholesale & Export only. [Est. 1903.

KINSLOR WORKS, Herschell Road, LONDON, S.E.23

DEVELOPING, PRINTING & ENLARGING

GOOD QUALITY AND
GOOD SERVICE.

We invite clients to inspect
our factory and see for
themselves the system
under which we work.

WRITE FOR PRICE LIST.

C. WOOLLONS
M.P.S.

Photographic Developing & Printing,
Manor Wks., Acton Lane, Harlesden, N.W.10
(Two minutes from Jubilee Clock.)

DEVILBISS
SPRAYS

MEDICAL
— and —
PERFUME

27 Old Bond Street, London, W.
GERRARD 6867.

Pyrogallie Acid Gallic Acid

Manufactured by **J. L. ROSE, Ltd.**

At ABBEY ROAD, BARKING, LONDON, E.

Wholesale and Export only.

EXCLUSIVELY A PHARMACY
LINE

P.P.T.

Py-SHAN POINTS TEA

SECURES YOU REGULAR CUSTOMERS
AND 7d. PER POUND PROFIT.

Write for full particulars to — **Thos. Christy & Co.,** 4/12 Old Swan Lane,
E.C.4

Turn the FLIES into PROFIT

Every summer brings its pest of flies, and your customers are anxious to find some quick, sanitary means of destroying them.

The "WASP" Flyband meets this need. It is most effective, retains its freshness, and always satisfies your customers.

Stock the "WASP" and let it bring you profit.

The WASP Flyband

Manufactured by
F. W. HAMPSHIRE
& Co. - LTD.
Riverside Works,
Derby.

Mice!

113 KILLED

Mr. CECIL ASHLEY, Kirton Lindsey, writes:—"May 16, 1927. I desire to express to you my thanks for your Rodine. I have used it in my barn for two nights and have picked up 113 dead mice. You can use this testimonial as you please."

Rodine is a real Mouse Exterminator with merit. It is becoming known as the poison that Masters the Mouse.

Rodine Masters the Mouse

It is worth your while to push Rodine for Mice and you can have special circulars with your name and address printed on if you desire.

Get Rodine on best terms from the Sole Maker and Proprietor—

HARLEY Manufacturing **PERTH**
Chemist **Scotland**



BOB MARTIN'S sales have more than doubled in the last two years

*Are you taking your share
of this NEW BUSINESS?*

NEARLY 3,000,000 dog licences were issued in Great Britain last year; an increase over the previous year of nearly half a million.

This means that every chemist displaying Dog Medicines can count on a substantial and steadily-increasing business from that source.

Bob Martin's preparations are consistently advertised in the *Daily Mail*, *Daily Express*, *Daily News*, etc., and if you are not at present selling these lines your customers must be buying elsewhere. Every week we receive hundreds of post orders, with which we do not wish to be bothered.

For over 35 years Bob Martin's Tasteless Condition Powders have been used by the leading breeders and exhibitors in the Fancy.

BOB MARTIN'S TASTELESS CONDITION POWDERS



Your profit on Bob Martin's Powders is 38%, and sales are regular. You can obtain your supplies either from your wholesaler or direct. A good stock of really attractive sales-aids is at your service. Please let us know your requirements.

BOB MARTIN LTD.

*Specialists in Dog Medicines
since 1892,*

SOUTHPORT, LANCS.

TRUFOOD IS SOLD ONLY BY CHEMISTS

This statement is boldly made in
every one of our Press announcements.

"TRUFOOD IS SOLD ONLY BY CHEMISTS"

So Infant Feeding comes back once more into its proper sphere. The more you recommend and sell Humanised Trufood, the more credit do you bring to the Profession, and the more profit to yourself.

This is a bold step we have taken, and can only react to our mutual benefit in competition with those infant foods indiscriminately "sold everywhere."

Humanised Trufood is the one scientific alternative to breast-feeding, and we shall be happy to supply you with proof that this is so.

HUMANISED
TRUFOOD

Nearest to Mother's Milk

Trufood Limited, The Creameries,
Wrenbury, Nr. Nantwich, Cheshire.

T.F. 224-130

Sell HONEY with a TRUE HONEY FLAVOUR

Your customers will never tire of the flavour of

NEW ZEALAND
'Imperial Bee' **Honey**

It has the largest sale in the world and repeat orders are bound to follow.

GUARANTEED PURE and WITHOUT
PRESERVATIVES, rich in the essential
vitamins, because it is uncooked.

CASES per dozen, carriage paid.

48/1's	Glass Screw-top Jars	at	14/-
48/1/2's	" " "	at	8/6
48/1's	Monopots - -	at	12/6
48/1/2's	" - -	at	7/3

If you cannot obtain supplies through
your Wholesaler, write to—

A. J. MILLS & Co. Ltd. (Produce & Canned
Goods Dept.), 14 Tooley St., London, S.E.1

A & PS

1

EMPIRE PRODUCE

RIDGE'S FOOD

for Infants and Invalids

WELL ADVERTISED to the GENERAL PUBLIC.

SAMPLES, ADVERTISING MATTER and SPECIAL
DISPLAY TERMS ON APPLICATION TO:

ROYAL FOOD MILLS, LONDON, N.16

CAMWAL

TABLE WATERS - in Syphons & Bottles
LEMONADE POWDER { in Packets, Cartons,
and Canisters.
AQUAPERIA WATER } WINDOW
or SALTS (P.A.T.A.) } DISPLAYS.
LEMON SQUASH - in 26 oz. Bottles.
(with plain or Soda water forms a delicious drink).

HOME and EXPORT PRICES and TERMS on application.

CAMWAL, Ltd. LONDON, MANCHESTER, BRISTOL,
BIRMINGHAM, BARROGATE.
City Office: 52 Queen Victoria Street, LONDON, E.C.4
Phone: City 4497.



SO A POSTER *that will sell*

We think you will agree that the new Wincarnis poster, illustrated above, is an attractive and forceful design that should prove a valuable sales-help. It is printed in 13 colours and is now being displayed on most of the principal hoardings of Great Britain, where it will be well supported by a 16-sheet poster printed in 9 colours. It will be to your advantage to provide a final and definite "reminder" to this publicity by displaying Wincarnis prominently in your Pharmacy window.

WINCARNIS

COLEMAN & CO. LTD.
Wincarnis Works, Norwich

BICKIEPEGS

REGD.

BICKIEPEGS

THE NEW BISCUIT
BONES FOR TEETHING
BABIES

1/- 8/- P.A.T.A.
DOZEN.

CHU CHUS

WHOLEMEAL RUSKS
BAKED CRISPER THAN
THE ORDINARY RUSK

1/- 9/- DOZEN.



BICKIEPEGS

REC9

BICKIEPEG BROTH

BONE-BUILDING BROTH MADE
FROM A RECIPE OF AN
EMINENT SPECIALIST

2/- 18/- P.A.T.A.
DOZEN.

RAISIN RUSQUES

BUTTER, EGGS, CREAM, YEAST,
RAISINS & WHOLEMEAL FLOUR

1/- 9/- DOZEN.

NATIONALLY ADVERTISED, ATTRACTIVELY PACKED AND RECOMMENDED BY
MEDICAL MEN, THE SALES OF BICKIEPEG PRODUCTS ARE INCREASING BY
LEAPS AND BOUNDS, SEE THAT YOU HOLD STOCKS TO MEET THE DEMAND.

All Enquiries from Home and Abroad to—

Sole
Agents

WM. EDWARDS & SONS

14-18 NILE STREET
CITY RD., LONDON N.1

LOSALL'S SALT

SELLS FREELY AND READILY.

PAYS 50% ON OUTLAY.

An infallible remedy for

**Gout
Rheumatism
Eczema & Skin
Affections**

P.A.T.A. doz.
net

4 oz. tins 1/-, 8/-

8 oz. „ 1/9, 14/-

Bottles 2/6, 20/-

Attractive advertising
matter supplied on
application.



SOLD EVERYWHERE.

Manufactured by

**LOFTHOUSE & SALTMER, Ltd.
HULL.**

The only perfect Port Style British Wine is

GALISTA

(Pure Grape Red)

Price in bulk 8/- per gallon—in bottle 20/- per dozen.

Perfect keeping properties without preservatives. The
finest known basis for Tonic and Malt Wines of any kind.

Also GALISTA MEAT AND MALT WINE supplied ready for
bottling as a Tonic Wine 12/- per gallon. Can be put up bottled
under special labels and wrappers. Prices on application.

And GALISTA ORANGE QUININE B.P., 9/6 per gallon.

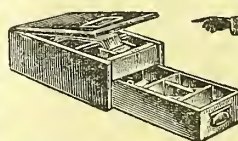
GALE LISTER & CO., LTD., LEEDS

Tonic Wine Producers to the Trade.

Telegrams: "Vinyard, Leeds."

Phone: 28521 (6lines)

Sent on 14 days approval



Upon receipt of Cash or two wholesale trade
references.

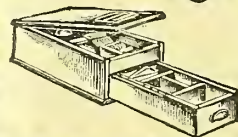
The "Little Brilliant" Till.

Well-seasoned highly polished solid mahog-
any, dovetailed edges, Alarm Bell, 32/-

Lock and key to lid. Size 16x8x6 1/2

Paper Coils 2 1/2 in. wide, 4/- doz.

List No. CD932 of other Tills free.



The "Argyle" Till.

Highly polished solid mahogany, dovetailed
edges, checkaction to drawer, Alarm

Bell. Lock and key to lid. Size 16x9x7 1/2

Paper Coils 3 1/4 in. wide, 4/6 doz.

DUDLEY & COMPANY, LIMITED,

HOLLOWAY ROAD, LONDON, N.7

City Showrooms: 65 Fore St., E.C.2



The Young Mother

reads the 'Roboleine' advertisements and is always ready to buy something which will benefit her baby. And that is why you should always display and recommend

Roboleine

THE FOOD THAT BUILDS THE BODY

OPPENHEIMER, SON & CO., LTD.

179 QUEEN VICTORIA STREET, LONDON, E.C.4

PURE ORANGE WINE

A. MILLAR & CO., LTD., DUBLIN

VINUM AURANTII B.P.)

Prepared in strict accordance with the Formula of the British Pharmacopoeia.

(Wholesale only.)

Samples from Head Office, Thomas Street, DUBLIN, or London Office, 74 Great Tower Street, LONDON, E.C.3.

**LADDERS, STEPS,
TRESTLES, TRUCKS
HEATHMAN,**

35, Aldersgate St., Near G.P.O. LONDON.



Ask for "PAZO"

PILL BOXES

The most convenient and secure Pill Box obtainable.

NO LOOSE BOTTOMS

Samples and Prices on application.

The "PAZO" CO., Oldbury

Guaranteed
not to
crystallize
or ferment.

Supplied in Bulk,
or in Jars, Tins,
or Cardboard
Containers.



Wholesale and
Export Enquiries
Invited.

PAINE & CO.

- LIMITED -

"JOHN BULL" WORKS
ST. NEOTS, Hunts,
ENGLAND.

Glass Bottles

OF EVERY DESCRIPTION.

MEDICALS, PANELS, VIALS, POISONS, GRADUATED MEASURES.

Sample Oils for Oilmen. Ink, Gum, Varnish, Sauce, Furniture Cream, etc.

We make every description of bottle and can meet all your requirements. *Our Bottles are British—and Best!*


*We invite
your enquiries.*

FREDERICK HAMPSON

Perseverance Glass Works
Duncan Street, SALFORD.

Telephone:
1018 Trafford Park.

Telegrams:
"Attention, Salford."



OLIVE OIL BOTTLES
Provence and Pedestal Shapes.
"TURNED" quality, i.e. Seamless.

**MACHINE MADE
CANNON ESSENCES**
Round—Heavy.

LOW PRICES. PROMPT DELIVERY.

Write or phone (Central 2430, 5 lines and 4 private lines).

L. LEPERSONNE & Co.
(Etab. 1888.)
99 CANNON STREET - LONDON, E.C.4
(Strictly Wholesale. Original crates only.)

TRUST NOT IMITATIONS,
you can still obtain

VISKAP
BOTTLE CAPS

as supplied by us for over 20 years

SELF-FIXING, HERMETIC,
TRANSPARENT, OPAQUE, COLOURED, WHITE.
IMMEDIATE DELIVERY

from the Original Patentees and Manufacturers:
VISCOSE DEVT. CO., LTD., BROMLEY, KENT.

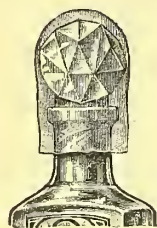
The unique experience of our Works,
established in the year 1815, is
embodied in our well-known

Self-Fixing, Hermetically Closing

BOTTLE-CAPS

("WALO" BRAND)

Immediate Delivery

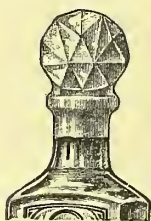


When wet.

White and
all Colours.

Opaque and
Transparent.

All sizes.



When dry.

Obtainable only from—

BRUCE, DAWSON & CO.

70 Finsbury Pavement, London, E.C.2

Telephone: Clerkenwell 4857. Telegrams: "Brudako Ave London."

STOPPERS



200 Varieties
Any Colour.

A suitable Composition Stopper will enhance the selling value of your package. Let us fit your Bottles and quote you.



T. WEBSTER & Co.

Telephone:
Mountview 0952

Diamine House, Middle Lane, Hornsey, LONDON, N.8

WAGNER'S DRY BOTTLE CAPS
BEST IN QUALITY & APPEARANCE



Self-Fixing

R.V. WAGNER

33, Brooke St., London, E.C.1.

Tel. No: Holborn 5090

Registered Trade



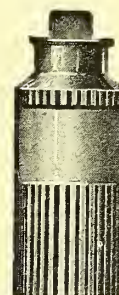
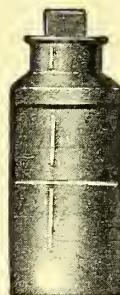
Mark, No. 26866.



Hand-turned Shop Rounds.



Recessed Shop Rounds.



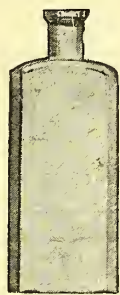
Recessed Poison Rounds.

SHOP BOTTLES

of the finest finish. Perfect Stoppering. Made in glass free from arsenic and lead; this feature is of vital importance in the case of Shop Bottles.



R.C. Flat.



B.C. Flat.

DISPENSING BOTTLES—

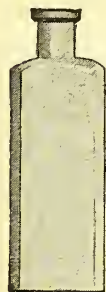
accurate in Capacity, free from arsenic and lead, and handsome in appearance. The aristocrats of bottles.



Oval.



Oval Fronted Flat.



B.C. Square.



R.C. Square.



DOUBLE-ENDED FEEDERS

The finest the world has yet seen. Made in beautiful lustrous white flint glass which is so durable that it may be boiled continuously for twenty-four hours without shewing signs of deterioration.



Oval, 2 Flat Sides.



Octagon.

Sold by all the Leading Wholesale Houses.

WOOD BROTHERS GLASS CO., LTD.
BARNSELY, (Established 1828) **ENGLAND**



FAIRY DYES

Mean Greater Turnover for You—and Absolute Satisfaction for Your Customers.

THERE is no more attractive line on the market to-day—there is no better seller—and no article has made larger strides in popular favour.

FAIRY DYES

are now sold in glass tubes, encased in smart, clean-looking "safety-first" cartons. They are retailed at 2d. each, made in 25 popular shades and colours, and are extensively advertised in the right publications.

You can rely upon Fairy Dyes—for prompt delivery in any quantities—for fresh stocks—for quick, easy-to-handle, clean turnover, and as tried favourites your customers are always satisfied. See that you are supplied without delay.

For Trade Terms and particulars write to

FAIRY DYES, LTD.,

61 WELL ROAD
GLASGOW.

London Depot - - - - 292 UPPER STREET, ISLINGTON, N.1.

A STRAIGHT 6d., 9d. & 1/- LINE

THAT NO ONE IS ALLOWED TO CUT.

The Ink is right and terms are right.
The sale increases every year, proving
its popularity with the Trade and Public.

RECOMMEND JOHN BOND'S 'CRYSTAL PALACE' MARKING INK

Established 125 years, in the Reign of King George III.
6d. size 4/3 per doz., 9d. size 6/- per doz.
1/- size 8/- per doz.

Showing Retailers 30% on turnover on the
6d. size, and 33½% on the 9d. and 1/- sizes.

A Linen Stretcher and Special Marking
Pen given with the 9d. and 1/- sizes.

WHOLESALE TERMS:

MINIMUM—1 gross 6d., 44/., or mixed order to same value,
1 gross 1/-, 80/- subject to customary discount on quantities.
9d. Bijou Cabinets 60/- per gross net.

CARRIAGE PAID on parcels of £2 4s. 0d. and upwards.
When ordering, please specify if HEAT OR NON-HEAT is required.

23 YEARS ON THE P.A.T.A.

Manufactory : 75, Southgate Rd., London, N.1

DOGS' AILMENTS

(AND CATS').

SYMPTOMS & TREATMENT. Pamphlet free on demand.
Worm Capsules, Eczema, Ear Canker and Eye Lotions,
Insect Shampoo, Tonic Alternative and Digestive Mixture.
LIBERAL TERMS TO CHEMISTS AND DISTRIBUTORS.

"ARC" ANIMAL REMEDIES CO.

69 BISHOPSGATE - - - LONDON, E.C.2

Sherleys



LACTOL &c.

(P.A.T.A.)

of profit for the retailer, and the terms on which they are supplied preclude
any possibility of loss. We have an excellent range of literature and show
cards, and do all in our power to assist chemists by referring mail customers
to them. WRITE FOR PRICE LIST AND TERMS.

A. F. SHERLEY & CO., LTD., 18 MARSHALSEA ROAD,
LONDON, S.E.1.

Tel. No.: Hop 1897.

Telegrams: "Sherleydom, London."

POTTER & CLARKE

60/64, ARTILLERY LANE L^{td}
LONDON, E.1.

Telegrams :
"Horehound, Phone, London."

Telephone :
Bishopsgate 1033-4-5.

MANCHESTER : 24 LUNA STREET, GREAT ANCOATS.

WE SPECIALISE IN PILLS AND TABLETS To Customer's Private Formulæ.

WE GUARANTEE ACCURACY
∴ AND QUICK DELIVERY ∴

Submit your Formulæ and ask for quotation, mentioning quantity. Our price is right, and the finish of our Pills and Tablets Second to None.

POTTER'S ASTHMA CURE

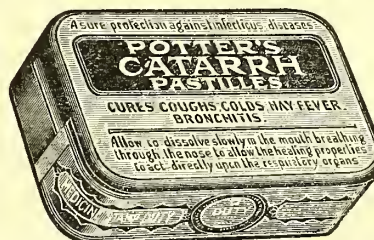
Widely advertised to the Public.



P.A.T.A. 1/6 14/- doz.
CIGARETTES P.A.T.A. 1/6 14/- doz.
SMOKING MIXTURE 9d. 7/- doz.

POTTER'S CATARRH PASTILLES

Widely advertised to the Public.



P.A.T.A. 1/3
Per dozen - - 11/-



CREPE BANDAGES BEST BRITISH MAKE



THE NORVIC "RESILA" 70% WOOL

Each in a blue carton
CREAM or FLESH COLOUR. NO LINE.

2 in.	2½ in.	3 in.	3½ in.	4 in.	
13/6	16/-	18/6	21/-	23/9	doz.

B.P.C. "VIC" QUALITY

Each wrapped

	2 in.	2½ in.	3 in.	3½ in.	4 in.	
Cream -	5/9	7/3	8/8	10/1	11/7	doz.
Flesh -	6/1	7/8	9/2	10/9	12/4	doz.

EXTRA WIDE (BINDERS)

Cream colour. Wrapped

		6 in.	8 in.	11 in.	
"Resila" -	37/-	47/6	66/-	doz.	
B.P.C. -	17/4	23/-	30/9	doz.	

All prices subject to 2½% monthly discount.

Britton, Malcolm & Waymark Ltd.
38 SOUTHWARK BRIDGE RD., S.E.1

TELEPHONES :



WATERLOO 1442
(2 Lines)

YOUR CONTAINERS

*Do you realise that they
are the standard by which
the general public first
judge your goods?*

*Let us help you to make
them really distinctive—
yet artistic; in short*

*Really
Effective
Salesmen*

WE WILL GLADLY SEND YOU SAMPLES
OF OUR STOCK PATTERNS IN TIN
CANISTERS, OR WILL SUBMIT DESIGNS
BASED ON YOUR INSTRUCTIONS.
WRITE TO-DAY AND LET US GO INTO
THE MATTER WITH YOU.

Hornby & Co.
(Hull) Ltd.

36 High Street, Hull

'SKETOFA X'
*is a summer-time
 necessity*

An attractive showcard is available. It will prove a real sales-help displayed on your counter.

Ask for Showcard
 No. 0731

TRADE
 MARK

'SKETOFA X'

BRAND

AROMATIC CREAM

How many times during the next three months will customers say "Something for mosquitoes"? Alert pharmacists will sell 'SKETOFA X.' It saves time because it is accepted without hesitation. Its sale is profitable and enhances the seller's reputation.

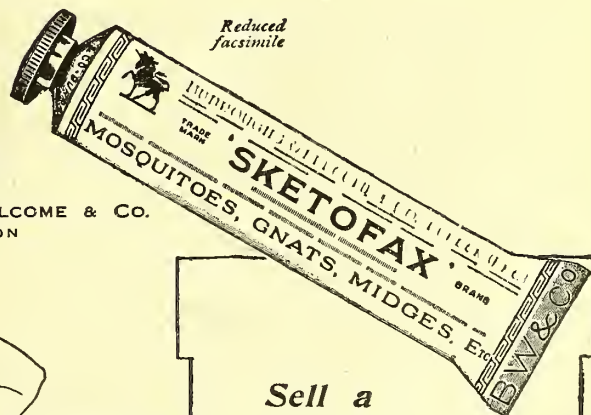
'SKETOFA X' is fragrant and non-staining, convenient for pocket or hand-bag. It not only protects from attacks of mosquitoes, gnats and midges, but renders prompt and effective relief to those who have been bitten.

Collapsible tubes
 at 12/6 per doz.
 (subject)

Reduced
 facsimile



BURROUGHS WELLCOME & CO.
 LONDON



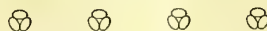
*Sell a
 tube to every
 holiday-maker
 sportsman and
 sportswoman
 who visits your
 pharmacy*





THE BRITISH DRUG HOUSES

'EASTERN FOAM'



REDUCED PRICES OF POTS

As already announced, the retail price of 'EASTERN FOAM' in pots will be reduced from 1/4 to 1/3 as from July 18. The wholesale price will be reduced to

10/3 per dozen.

This reduced price will be charged for pots of 'EASTERN FOAM' invoiced on or after the date of this advertisement. Window Display Terms will be proportionately reduced.

NEW SIZE IN TUBES

On July 18 supplies will be available of the new size 'EASTERN FOAM' in collapsible tubes.

Retail - 7d.

Wholesale 4/9 per dozen.



NEW SIZE IN TUBE

This new and attractive package will be extensively advertised, and a big demand is anticipated.

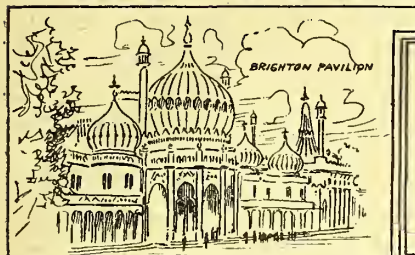
Pharmacists will be well advised to have stocks in readiness.

**SPECIAL TERMS (BOTH POTS AND TUBES)
FOR QUANTITIES WITH WINDOW DISPLAY.**

Particulars on application.

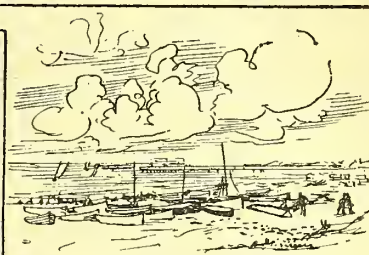
GRAHAM STREET, CITY ROAD, LONDON, N1

THE CHEMIST & DRUGGIST



CONFERENCE NUMBER

JULY 2, 1927

Published weekly at 42 CANNON STREET,
LONDON, E.C.4Branch Offices: Manchester, Sheffield and Glasgow,
also Melbourne and Sydney, Australia.Subscription, 20s. per annum, to any part of the world.
Single copies, 9d. each.

Contents

No. 1

Series 2473

Vol. 107

	PAGE		PAGE
Births	9	Editorial Articles:—	
British Pharmaceutical Conference:—		Merchandise Marks	
Social Side	5	Act	12
Photographs	6, 7	Mercury Barometer	13
Science Section	14	Irish News	2
Delegates' Meeting	40	June Drug Tariff	10
Closing Session	43	Legal Reports	3
Business Changes	1	Marriages	9
C. & D. Commercial		New Companies and	
Compendium	51	Company News	4
C. & D. Retail Price		Observations and Re-	
List	10	flections	11
Coming Events	3	Personalities	9
Correspondence:—		Retrospect	50
Letters	49	Scottish News	3
Legal Queries	50	Stock Exchange Prices	4
Miscellaneous In-		Trade-marks	10
quiries	50	Trade Notes	10
Deaths	9	Trade Report	45
English News	1	Westminster Wisdom	3

English and Welsh News

The Editor will be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

Death Accelerated by Anæsthetic

Dr. F. J. Waldo, senior coroner for London, held an inquest on June 20 touching the sudden death of Eric Ballinger, aged thirteen, the son of a registered dentist. The youth died in hospital after an operation for the removal of enlarged glands in the neck while under the influence of ether given as an anæsthetic. It was stated that, after careful preparation, the resident anæsthetist induced anæsthesia by ethyl chloride and ether, in a Clover's inhaler. This was followed by the administration of gas, oxygen and ether by a Boyle's apparatus. About seven minutes after the completion of the operation, failure of respiration was observed, and the patient ultimately died. Sir Bernard Spilsbury, in the presence of the anæsthetist and house surgeon, made a *post-mortem* examination, and all three doctors agreed that death was caused by syncope, due to fatty degeneration of the heart muscle, as a part of the condition of status lymphaticus, and accelerated by the influence of the ether administered. The coroner, in summing up, remarked that this was the eighth inquest he had held this year in reference to death accelerated by an anæsthetic, and that in seven of these cases the anæsthetic was ether. He would repeat his three recommendations:—

(1) On the principle that "the purer the ether the better the anæsthetic," an analyst's certificate of purity should accompany all anæsthetic ether, and the ether should be delivered and kept in lightproof packings, and in amber-coloured bottles, to prevent the formation of deleterious impurities. (2) That the notification to the coroner by surgeons, anæsthetists, and others having knowledge of any death under the influence of an anæsthetic, should be made compulsory. (3) That a small research committee of experts, nominated by the Home Secretary, and paid by the Treasury, should be appointed to co-operate with coroners with regard to inquests held on those dying under the influence of anæsthetics, and to investigate all matters connected with anæsthetics.

Dr. Waldo further pointed out that, as a result of partial notification of deaths under anæsthetics by doctors and others, the annual returns of the Registrar-General in such cases were incomplete and misleading. Unfortunately for the public, no notice had been taken by Government on this vital matter when dealing with their Coroners (Amendment) Act, 1926. A "Misadventure" verdict was recorded.

Contracts

The following tenders have been accepted by the bodies named:—

Blean Guardians.—Allen & Hanburys, Ltd., drugs; B. Pratt & Co., Ltd., dressings.

Dover Town Council.—Mr. James Weir, chemist and druggist, drugs, etc.

Isle of Wight Guardians.—Robert Bailey & Son, Ltd.; Boots, Ltd.; B. Pratt & Co., Ltd.; The "Sanitas" Co., Ltd.; W. G. Taylor (Southall Bros. & Barclay, Ltd.); Timothy White Co., Ltd., drugs and sundries.

Romsey Guardians.—Mr. F. Oram, Ph.C., dressings.

C C

Business Changes

MR. W. H. PARKIN, chemist and druggist, has opened a pharmacy at 51 Bristol Road, Edgbaston, Birmingham.

MR. F. H. MYLROI, chemist and druggist, is shortly opening a business at 61 South Parade, Bedford Park, London, W.4.

A. A. WILLIAMSON, LTD., have removed from 259A Nottingham Road to Market Place, Ilkeston, and have disposed of the Nottingham Road business to Mr. J. Hitchin, chemist and druggist.

Index to Volume CVI.

THE issue for June 25 completed Volume CVI, covering the first half of the year 1927. We have in preparation an index for the volume, which will be sent to subscribers who have already intimated that they desire to receive the indexes as published. The index is not sent out with THE CHEMIST AND DRUGGIST, but is supplied free to all subscribers who send us postcard requests for a copy. Those whose names are already on the list of subscribers who have indicated their desire and still wish to have the index regularly need not send us a further intimation.

STATUE TO PARMENTIER.—The Association of Pharmacists of Quebec has subscribed \$100 to the fund for the re-erection of the statue of Parmentier at Montdidier, destroyed by the Germans in 1918. It is proposed that subscriptions to this fund should be accepted exclusively from pharmacists. About one-fifth of the total required (about £8,000) has so far been raised.

Private Arrangement

The creditors of Mr. James Henry Bill, "druggist," High Street, Dudley, were called together on June 22 at Birmingham, when a statement of affairs was submitted which disclosed liabilities £600. In addition, there were secured creditors for £497, who held securities valued at £650. The assets were estimated at £288 (net, £248). The concern was originally carried on by Mr. G. T. Owen, who died in 1914, when the debtor took it over. The purchase price was £276, which was borrowed, and of which £245 was still owing. It appeared that the takings for the last three years had averaged £30 a week, and the expenses had been about £11, including debtor's drawings of £3. The debtor's solicitor put forward an offer of a composition of 5s. in the £, payable in cash within fourteen days. The creditors did not consider that offer adequate, and it was increased to one of 6s. in the £, which was accepted.

Birmingham

W. H. Wilkins, Ltd., have opened a pharmacy on the Cadbury Bournville Estate.

Miss M. G. Marshall, daughter of Mr. H. H. Marshall, Moseley, has secured a pass in Class III of the Cambridge English Tripos examinations.

Among recent subscriptions to the Birmingham Hospital Fund are:—Employees of Cadbury Brothers, Ltd., £3.394 13s.; Southall Brothers and Barclay, Ltd., £100; W. Canning & Co., £89 11s. 11d.; A. Bird & Sons, Ltd., £80 0s. 5d.; J. & E. Sturge, Ltd., £35 16s. 8d.; Patent Borax Co., £15 15s.

The death of Dr. G. Langford Clay removes from Moseley a medical veteran well known to pharmacy. He was a son of Professor Clay, who in 1880 introduced chian turpentine as a specific for cancer in the form of a mixture which was devised by the late Mr. Henry Campbell, Ph.C., dispenser at the "Queens."

Leicester

Excellent displays of Ashes of Roses in local pharmacies indicate that the skill of Leicester chemists shows no sign of diminishing.

Miss Marjorie V. Martin, daughter of Mr. H. A. Martin, Willow Bridge Street, a former pupil of the Wyggeston Grammar School for Girls, has gained her final M.B., Ch.B., with distinction in medicine, at Birmingham University. Miss Martin has also been awarded the Arthur Foxwell memorial prize in clinical medicine.

Manchester

Stanley Solmon and Alexander Fish, who gave Manchester addresses, were each fined 6s., at Fleetwood, on June 22, for hawking ointment and soap without a licence.

Speaking at a luncheon in connection with the opening of the Manchester Insurance Committee's new premises, on June 28, Mr. L. G. Brock, principal assistant secretary to the Ministry of Health, said that the increase in the consumption of drugs and medicines, particularly in Manchester, was causing uneasiness. Whereas the average expenditure last year for England was less than 4½d. per head of population, in Manchester it was over 6½d., and in Salford over 6¾d.

Sheffield

Reports as to the state of trade in the city are not encouraging.

For Insurance patients, 3xij. instead of 3viii. mixtures are being more frequently prescribed by local doctors.

The staff of the North-East Midland Pricing Bureau visited Altón Towers on the occasion of their recent annual outing.

Miscellaneous

INQUEST.—An inquest was held at Broadstairs, on June 29, on the body of Mrs. Alice A. Streek, a Croydon resident, who died while on holiday. A medical witness stated that Mrs. Streek told him she had taken 97 quinine tablets, equivalent to about 240 gr. of the quinine salt, for insomnia. The inquest was adjourned.

THEFT OF COUMARIN.—At Tower Bridge Police Court, London, on June 22, Frank J. Harding (48) and John Shielding (38) were charged with being concerned together in stealing and receiving coumarin worth £14, the property of Stevenson & Howell, Ltd., manufacturing chemists, Southwark Street, S.E. It was stated for the prosecution that the accused were both men of good character and their profits from these illegal dealings were not believed to be large. The Magistrate: It is very difficult for me to take the lenient view suggested by the prosecution, as these thefts have been deliberate and spread over a long time, but you will both be bound over in £5 each and pay £3 each as costs.

IN THE COURTS.—In the Mayor's and City of London Court, on June 21, F. W. Berk & Co., Ltd., chemical merchants, Fenchurch Street, E.C., made a claim against Sinclair & Co., motor-body builders, Clapham, S.W., for the value of carboys not returned. There was no appearance on behalf of the defendants, and judgment was given for the plaintiffs for the amount claimed.—At Lancaster, recently, John Hartley & Co., grocers, Millbank, Carnforth, were summoned for not having their name on a bottle of Jeyes' Fluid sold on June 2. The Bench dismissed the case with a caution.—At Shobury-ness, on June 27, Ralph Norfolk, an Army gunner, was committed for trial on charges of murder and of attempting suicide by taking lysol (*C. & D.*, April 30, p. 512).

AN INDIAN DRUG FIRM FILMED.—At the American Film Co.'s studio, Wardour Street, London, W., an interesting cinematograph film was shown on June 17 of the premises and activities of B. K. Paul & Co., Calcutta, to a large gathering of the principals of the leading drug and chemical manufacturers of Great Britain and the Continent. Mr. H. D. Nag welcomed the guests and briefly gave a history of his firm. He explained how the late Mr. Butto Kristo Paul, the founder, from small beginnings gradually built up a substantial business, until to-day the business was one of the largest of its kind in the eastern hemisphere. The pictures included the unveiling of a statue of the late founder in Cornwallis Square, by Sir Rajendra Nath Mookherjee. This statue was erected by public subscription. The rest of the film was devoted to the display of the show rooms, the sales counters, the packing departments, export business, analytical work, surgical instrument manufacture at Dum Dum Factory, mail, rail and boat despatch, and many other interesting sidelights.

Irish News

Brevities

An association of townspeople has been formed at Mallow to enable members and their dependents to get medicines and medical attendance at a small annual fee.

Mr. F. T. Smith, J.P., Ph.C., Antrim, at the recent elections, was returned unopposed to the Antrim District Council, and Board of Guardians. He was also elected a Governor of Massereene Hospital, and a member of the Regional Education Committee.

At a meeting of the Londonderry County Council agricultural committee, on June 25, Mr. Jackson spoke of the regulations restricting the sale of agricultural poisons, chiefly to chemists. It was decided to send a resolution to the Home Office asking them to withdraw the regulations, which, it was stated, were against the interests of agricultural industry.

At the Down County Council recently a letter was read from the Ministry of Home Affairs, Belfast, intimating that it had deferred to an objection by the Pharmaceutical Society against the issue by the County Council of 17 licences to a number of general traders to sell poisonous substances, such as sheep dip and weed-killer, to be used exclusively in connection with agriculture or horticulture. It was resolved to enter a vigorous protest, the cancelling of the licences being a serious hardship, not only to the traders accustomed for years to stock and sell these articles, but also to the farming community; and it was stated that steps were being taken to secure the co-operation of the Ministry of Agriculture in sending a deputation to the Home Ministry.

Scottish News

Brevities

Mr. William Geddes, chemist and druggist, Keith, has acquired the business of Mr. A. Wilson, 144 Mid Street.

Mr. W. J. Gilmour, chemist and druggist, has acquired the business lately conducted by Mr. H. Hughson, Auchinblae, Fordoun, Kincardineshire.

Mr. George Henderson, who was connected with pharmacy in Kirkcaldy, has been successful in passing the final examination for the degrees of M.B., Ch.B., of St. Andrews.

Mr. Archibald Wilson, chemist and druggist, who has disposed of his business in Keith to Mr. William Geddes, will open a pharmacy at 12 Main Street, Bridgend, Perth.

The following is the result of the poll for the election of the Executive of the North British Branch of the Pharmaceutical Society:—

W. G. McNab (Gore-bridge) ...	334	P. M. Duff (Glasgow) ...	239
Anthony McMillan (Glasgow) ...	315	F. W. M. Bennett (Arbroath) ...	231
J. B. McVittae (Glasgow) ...	307	A. Currie (Leith) ...	206
Thomas McKenzie (Inverness) ...	295	A. Murray (Glasgow) ...	205
Thomas Harley (Perth) ...	281	<i>J. Ferrier (Falkirk) ...</i>	<i>202</i>
M. Meldrum (Ayr) ...	281	<i>J. B. Mitchell (Edinburgh) ...</i>	<i>168</i>
C. Simpson (Aberdeen) ...	280	<i>J. Noble (Leith) ...</i>	<i>167</i>
H. P. Arthur (Glasgow) ...	278	<i>E. Brindle (Edinburgh) ...</i>	<i>141</i>
J. J. Forbes (Perth) ...	277	<i>J. C. Henderson (Edinburgh) ...</i>	<i>140</i>
J. R. Milne (Dundee) ...	275	<i>J. S. B. Heddle (Leith) ...</i>	<i>139</i>
C. Stewart (Kirkcaldy) ...	273	<i>J. G. Selater (Edinburgh) ...</i>	<i>126</i>
A. A. Dick (Bellshill) ...	272	<i>G. D. Thomson (Leith) ...</i>	<i>79</i>
J. H. Fisher (Dunfermline) ...	257	<i>M. H. Stone (Glasgow) ...</i>	<i>75</i>

The names in italics are those of the unsuccessful candidates.

Glasgow

The business carried on by Miss Agnes M. A. Millar, 95 Holmlea Road, Glasgow, has been acquired by Mr. Donald Macaulay.

John Poynter, Sons & Macdonald, manufacturing chemists, Huntershill, Bishopbriggs, have opened a central city office at 189 St. Vincent Street, Glasgow, C.2.

Gordon & Fraser, Ltd., 376 Argyle Street, Glasgow, have acquired the business of Mr. Powrie, 138 Stobcross Street, which will be carried on under the management of Mr. Donald Carmichael, chemist and druggist.

Donald Macaulay, Ltd., 22 King Street, Trongate, Glasgow, C.1, have been appointed selling and distributing agents for Tokalon preparations in Scotland, in succession to Mr. Robert Brown, and will be able to supply promptly from stock.

The dissolution is announced, in "The Edinburgh Gazette," of the business carried on under the name of M. F. Thompson & Co., by Mr. Donald MacGregor and Mr. Simpson Jamieson at 16 West Nile Street, Glasgow. The business will be continued by Mr. D. MacGregor.

The Corporation Health Committee have accepted the following tenders for the supply of stores to the local hospitals for the ensuing year:—Raines, Clark & Co., Ltd., Edinburgh, drugs and chemicals; W. G. Taylor, Birmingham, dressings; George McLellan & Co., Glasgow, waterproof dressings; Roxburgh, Morgan & Co., Ltd., Glasgow, lysol; Cockburn & Co., Ltd., Glasgow, capsules, etc.

Coming Events

Sunday, July 3

London Chemists' Golfing Society.—Thorndon Park Golf Club. Competition for Burgoyne Cup.

Thursday, July 7

London Chemists' Golfing Society.—West Middlesex Golf Course. President's Prize and Thomson Cup.
South-East London Chemists' Association. Mr. Tucker's Pharmacy, Sainsbury's Buildings, Loampit Vale, at 2.30 p.m. Annual outing. Tickets, 7s. (including tea).

Westminster Wisdom

Notes on Parliamentary Matters

PATENT MEDICINE DUTY

During the Committee stage of the Finance Bill in the House of Commons, on June 28, the question was debated as to making permanent the additional duty imposed as a war measure. Up to this year this additional duty has had to be re-enacted each year. Sir Robert Hamilton moved an amendment to the Government proposal which would have the effect of causing the additional duty to be reviewed annually. This was resisted by the Government, whose views were endorsed on a division. During the discussion Mr. Harris gave some details of the Medicine Stamp Act, 1812, and quoted with effect the quaint wording of the general charge. A curious reason for retaining the tax was given by Sir Hilton Young, the Financial Secretary of the Treasury. He said:—

With regard to this particular tax, no doubt very large profits are made by vendors of patent medicines, and very largely from the credulity and ignorance of their fellow countrymen. Either the patent medicine, as sold, is worth nothing or contains nothing which is not in the ordinary pharmacopoeia. In that case, the unfortunate purchaser has paid 10 times the amount the article is worth, and it is quite just that the vendor should make some contribution to the revenue. In those cases where there is some special knowledge or secret of manufacture contained in the article sold it is surely in the public interest that the secret knowledge should be at the disposal of the whole medical profession, and if it is not put at the disposal of the whole medical profession then it is right that the vendor should pay for this retention of useful knowledge from the public generally.

Legal Reports

"Black Currant Wine" Case.—At Kingston County Police Court, on June 23, Cyril Pooley, trading as the Silver Bell Non-Alcoholic Wine Co., Saxon Road, Ilford, was summoned for having sold black currant wine, which, on analysis, was found to contain no black currant juice, it being a coloured, flavoured and acidified solution of sugar. A fine of £15, with costs, was imposed.

Ex-Employee's Action.—In the King's Bench Division of the High Court, London, on June 23 and 24, Mr. Justice Swift and a common jury had before them an action by Mr. Alfred E. L. Roff, Willow Street, Bermondsey, S.E., against his former employers, J. & E. Atkinson, Ltd., perfumery manufacturers, Southwark Park Road, S.E., to recover damages for alleged false imprisonment, malicious prosecution, and wrongful dismissal. Mr. Roff stated that he had been twenty years in the defendants' employ. It was part of his duty to see that defective and broken bottles were cleared away. On June 24, 1926, he sold a quantity of waste material to a man for 3s., was subsequently prosecuted for stealing 887 bottles, and was found "Not guilty" at the London Sessions. Mr. Walter Blount, manager of the defendants' factory, said the material that was taken away in June 1926 included a very large number of bottles which should have been returned to the manufacturer. He never asked the police to detain or arrest Roff, the police originating the matter without the knowledge of the company, but witness signed the charge sheet. The judge ruled that there was no evidence of malicious prosecution. His lordship said he was doubtful whether there was any arrest of Roff at the instigation of Mr. Blount, but he ruled that if there was an arrest by Mr. Blount the latter had no authority from his firm to make it. On the issue of wrongful dismissal, the plaintiff's counsel accepted the £7 that the defendants had paid into court. His lordship discharged the jury, and entered judgment for the defendants on the issues of malicious prosecution and false imprisonment, with costs, and on the issue of wrongful dismissal entered judgment for the plaintiff for £7, with costs down to the date when the £7 was paid into court.

A NUMBER of chemists in Liverpool attracted attention to their windows by displaying diagrams and information about the eclipse. Some experienced a fair demand for "eclipse goggles" and sun glasses.

New Companies and Company News

P.C. means Private Company and R.O. Registered Office.

HAYWARDS (BIRMINGHAM), LTD. (P.C.).—Capital, £1,000. Objects: To carry on the business of chemists, druggists, drysalts, oil and colour men, etc. R.O.: 90 Aston Road North, Birmingham.

DONALD C. SPENCE (CHEMISTS), LTD. (P.C.).—Capital £1,500. Objects: To acquire the business of a chemist and druggist now carried on by D. C. Spence at 188 Acton Lane, Chiswick, W., as "W. T. Stoyale." Director: D. C. Spence.

ANDERSON DENTAL DEPOT, LTD. (P.C.).—Capital £500. Objects: To carry on the business indicated by the title and that of chemists, druggists, manufacturers of dental supplies, etc. The directors are: J. B. Anderson and J. T. Appleton. R.O.: 73 Surrey Street, Sheffield.

DAVIES (DUDLEY), LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of chemists, druggists, drysalts, oil and colour men, refiners, analysts, dentists, opticians, perfumers, etc. The directors are: A. F. Davies and Mrs. E. Davies. R.O.: 83 High Street, Dudley.

VITREA DRAWN SHEET GLASS CO., LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of manufacturers of glassware of all kinds, manufacturers of and dealers in pharmaceutical, medicinal, chemical, industrial and other preparations and articles, etc. The directors are: E. F. Tetzeli, J. Meisl and L. Morecki. Solicitors: Cardew-Smith & Ross, 27 Ely Place, London, E.C.1.

ANTIMONY PRODUCTS AND CHEMICAL CO., LTD. (P.C.).—Capital £10,000. Objects: To adopt agreements with H. E. King, W. J. Knight Chandler and A. P. King, and to carry on the business of chemical manufacturers, wholesale druggists, drug grinders, importers and exporters, manufacturers of pharmaceutical, medicinal and chemical preparations, etc. The directors are: A. P. King and W. J. K. Chandler. R.O.: Croydon Road, Elmers End, Beckenham.

C. TOLKEIN & CO., LTD. (P.C.).—Capital £10,000. Objects: To acquire the business of a manufacturing chemist now carried on by D. Bulay-Watson at Apollo Chemical Works and Commercial Mills, Blackburn, as "C. Tolkein & Co.," and to carry on the business of manufacturers of and dealers in anatomical, orthopaedic and surgical appliances of all kinds, boot, stay and corset makers, etc. The directors are: Sir Francis Watson, Kt., D. Bulay-Watson, and C. E. Tolkein.

SQUIRE & CO. (BIRMINGHAM), LTD.—The annual ordinary meeting was held on June 22 at Stirchley, Birmingham, Mr. Thomas Needham presiding. The report for the year ended December 31, 1926 (see *C. & D.*, June 25, p. 778), was adopted. The chairman said the figures were extremely satisfactory, and a convincing proof of the stability of the business. That the management and staff could attain such results under such conditions for the last two years was something to be proud of. Mr. Samuel Sutcliffe, the retiring director, was re-elected.

THE "SANITAS" TRUST, LTD.—The first ordinary general meeting was held on June 24 at Winchester House, London, E.C. Mr. N. F. Kingzett (the chairman) first dealt with the balance sheet (*C. & D.*, June 25, p. 778) and expressed the opinion that it was thoroughly sound and satisfactory. The investments, consisting of holdings in the "Sanitas" Co., Ltd., and W. Woodward, Ltd., stood at £450,000, which, in his opinion, was considerably under their real value. He ventured to think that any trust company's investments included in its balance-sheet at a capital value showing a return of over 14 per cent. on that value, as theirs did, were stated at a really modest figure. The profit and loss account showed a credit balance of £62,293. In the prospectus the combined profits of the constituent companies for the year to March 31, 1927, were estimated at £85,000. The amount actually earned was £83,031. The report and accounts were unanimously adopted.

Stock Exchange Prices

£1 Shares unless otherwise stated	Dec. 31, 1926	May 31, 1927	June 28, 1927
Allen & Hanburys, 7% Prefd. Ord.	s. d. 20 6	s. d. 20 0	s. d. 20 0
Amalg. Dental Co., 8% Prefd. Ord.	18 3	17 6	17 6
Deferred 5s.	4 6	4 0	4 0
Apollinaris and Johannis, Ord. £1	10 3	9 3	9 0
Ayrton, Saunders & Co., 7½% Pref.	13 0	15 0	15 6
Beecham Estates & Pills, 8% Cum. Pref.	21 0	21 6	21 3
Benger's Food, Ord.	35 0	37 0	35 6
Boake (A.), Roberts & Co., 5% Pref. £10	£6½	£6½	£6½
Boots Pure Drug, Ord.	124 3	130 0	126 3
Boots Pure Drug, 7% "A" Prefd. Ord.	24 0	23 10½	23 7½
Boots Cash Chemists (Southern), 6% "A" Pref.	21 9	21 9	21 7½
Borax Consol., Defd. Ord.	30 3	28 9	28 3
Bovril, 6% Pref.	20 9	21 0	21 6
" Ord.	23 9	23 0	22 9
" Defd.	42 0	40 0	38 3
British Celanese, Ord.	5 9	14 3	28 6
" 7½% Pref.	9 3	16 0	22 6
British Cyanides, Ord., 2s. shares	2 3	2 1½	2 0
British Drug Houses, The, Ord.	20 9	16 0	15 6
British Glues and Chemicals, Ord.	3 0	1 9	1 9
" 8% Pref.	11 3	8 6	8 6
British Oil and Cake Mills, Ord.	25 9	27 0	26 6
British Oxygen, Ord.	27 0	27 6	27 6
British Photo. Indus., 6% Cum. Pref.	10 0	12 0	14 3
Bush (W. J.) & Co., 5% Pref. £5	63 9	60 0	63 9
Cadbury Bros., 6% Pref.	23 6	22 9	22 9
Callard, Stewart & Watt, Ord.	42 6	43 9	46 3
" 5½% Pref.	18 9	19 0	18 6
Crosfield (Joseph) & Sons, 6½% Pref.	18 6	19 6	19 3
Dubarry Perfumery, Ord. 1s.	7 9	12 0	11 3
" 7½% Pref.	19 0	19 3	19 3
Eastman Kodak Com. (no nom. value)	\$135	\$149	\$165
Evans Sons Lescher & Webb, Ord.	4 0	4 3	5 3
" 6s. 8d. shares	4 6	5 0	5 0
" 6% cum. part. Pref.	11 0	13 9	13 0
Field (J. C. & J.), Ord.	18 6	20 0	20 6
" 7% Pref.	18 3	19 6	18 9
Gossage (William), 6½% Pref.	46 3	56 3	58 6
Grout & Co., Ord.	19 0	17 3	16 3
Hoppells, 7% cum. partic. Pref.	46 0	59 6	58 0
Hodder (Henry) & Co.	19 0	20 0	20 0
Idris & Co., "A" Ord.	28 9	30 0	30 0
Ilford, Ltd., Ord.	19 0	19 0	19 0
" 6% Pref.	22 9	24 6	25 0
Imperial Chemical, 7% Pref.	21 6	26 1½	27 4½
" Ord.	6 6	7 1½	8 6
" Defd. 5s.	10 0	11 3	11 3
Intern. Sponge Importers, 6% Pref.	12 6	13 0	13 0
Kent (G. B.) & Sons, 5½% Pref.	60 0	62 6	62 6
Knight (John), 25% Prefd. Ord.	20 0	20 0	20 0
Laporte (B.) & Co., Ltd., Ord.	19 1½	20 7½	20 9
Lever Bros., Ltd., 7% Pref.	18 9	20 0	19 9
" 8% Pref.	10 0	10 7½	10 9
" 20% Prefd. Ord. 5s.	£16½	£15½	£16½
Liebig's Ext. of Meat, Ord. £5	12 0	12 6	12 6
Mellin's Food, 6% Pref.	38 6	39 0	41 6
Mond Nickel Co., Ord.	24 9	25 0	25 0
" 7% Cum. Pref.	15 6	16 0	16 0
Nathan (Joseph) & Co., 7% Pref.	8 0	6 3	6 6
" 8% Prefd. Ord.	6 0	3 6	4 6
National Drug and Chem. Co. of Canada, 6½% Pref.	17 9	18 6	18 9
New Transvaal Chemical Co., 6% Pref.	21 0	22 9	23 0
" 8% Pref.	32 0	34 6	35 6
Salt Union, Ord.	30 0	31 3	30 9
" Pref.	24 3	23 3	23 9
"Sanitas," The, Co., 9% Prof.	—	21 6	23 6
Sanitas Trust, 10% partic. Pref.	22 6	22 6	23 0
Schweppes, Ltd., Ord.	39 6	41 9	42 0
" Defd.	30 0	31 9	31 0
Smith (Stephen) & Co., 6% Pref.	58 6	—	70 0
Southall Bros. & Barclay, Ord.	18 0	18 9	18 9
" 5% Pref.	45 0	48 9	49 0
Spratt's Patent, Ord	20 0	20 0	20 0
Stevenson & Howell, 6½% Cum. Pref	—	20 0	20 9
Taylor's (Cash Chemists) Trust, 7½% Cum. Pref. Ord.	—	2 4½	3 9
" 1s. Defd.	—	—	—
United Glass Bottle Man., 6% Mt.	£92½	£95½	£96
Deb. Stk., £100	17 0	14 6	15 3
Venesta, Ltd., Ord.	18 0	17 6	17 0
" 7% Pref.	18 3	18 9	18 9
Veno Drug Co., 8% Pref.	90 0	95 0	97 6
Virol, Ltd., Ord.	22 0	22 0	22 9
" 7% Pref.	9 6	10 6	10 0
White (A. J.), Ltd., Ord. 10s.	18 9	18 9	18 9
Wright, Layman & Umney, 6% Pref.	—	—	—

British Pharmaceutical Conference, 1927

THE SOCIAL SIDE

The Local Executive Committee were almost in danger, at the Closing Session, of the scriptural malediction pronounced on those of whom all men speak well. It must be put on record, however, that they deserved all the compliments that were accorded. In the past there have occasionally been disconcerting touches of the amateurish in the local arrangements. If the Brighton Conference of this year has done nothing else, it has shown how a conference should be run; and it is not unlikely that the standardisation of the British Pharmaceutical Conference, if it ever comes about, will be found to date from the year 1927. To the names mentioned at the Closing Session in this connection we must add those of Councillor C. G. Yates (vice-chairman of the Local Committee), Mr. A. J. Franklin (convener of the housing committee), and Mr. F. J. Flatman, all of whom must have worked overtime during the week. One of the most attractive features of the arrangements has been the permission to use the Pavilion and the Dome for meetings and social functions, a permission for which grateful thanks are due to the Corporation of Brighton. Whatever architects may say, this group of buildings is among the sights of the town.

The garden party which followed the closing session was a pleasantly informal affair, in which groups formed, dissolved, and re-formed in kaleidoscopic succession. The arrangement of the party into a semi-circle, and the subsequent wait while the camera was being adjusted, provided a sufficiency of fun, and the solemn manipulation of a Manchester member's hat to shield the lens from the rays of the sun gave the final touch of comedy.

The Conference banquet, held in the Dome on Tuesday evening, reached the high-water mark of such functions, alike in the tone of the speeches, the variety and sparkle of the musical programme, and the excellence of the dinner itself—a final but not unimportant detail. The chairman (Mr. D. Lloyd Howard) presided, and was supported at the chief table by the Mayor and Mayoress of Brighton, the President of the Pharmaceutical Society and of the Conference (Mr. Herbert Skinner), Dr. Donald Hall, Dr. L. A. Parry, Dr. J. H. Burn, Mr. L. Moreton Parry (Vice-President of the Pharmaceutical Society), Mr. H. Todd (President of the Pharmaceutical Society of Northern Ireland), Mr. F. E. Bilson, Mr. Thomas Guthrie, Mr. E. Saville Peck, Mr. E. White, Mr. John Smith (Dublin), Mr. J. H. Rothwell (town clerk of Brighton), Mr. W. A. H. Naylor, Mr. W. G. McNab, Mr. C. H. Hampshire, Mr. F. W. Crossley Holland, and a few ladies and gentlemen whom the exceptionally handsome floral decorations concealed from view. Mr. John Plowright acted as toastmaster, and Mr. F. W. Burgess directed the after-dinner musical programme; the Local Executive Committee also thoughtfully provided music before and during dinner.

The top table was a galaxy of gold chains of office. The Mayor wore his official decoration, and there were the gold collars of the President of the Pharmaceutical Society of Great Britain and the President of the Pharmaceutical Society of Northern Ireland. There were at least two lady pharmacists from Ireland present, and many chemists—male and female—came from Scotland, even from as far north as Stornaway. From France came the genial and debonaire Mr. John Jarvis, of the Pharmacie Swann, Paris, and Mr. A. F. and Mrs. Marr came all the way from California.

The speeches were, as we have indicated, unusually pointed and effective. Dr. Donald Hall, in giving the

joint toast of "The British Pharmaceutical Conference and the Pharmaceutical Society of Great Britain," characterised his remarks as a post-prandial prescription comprising basis, adjuvant, corrective and vehicle. The basis was the Pharmaceutical Society, which had a uniform system of qualification—and he prophesied that the medical profession, too, would eventually have a similarly uniform system. It was surprising to find that the Society, contrary to the usual practice, had colonised Scotland. (Laughter.) The British Pharmaceutical Conference was the adjuvant to the Society. He had thought of the D.D.A. as the corrective—(laughter)—but put that thought from him. In the British Medical Association a corrigens from within existed in the shape of reformers—(laughter)—and it might be that the same state of things existed in pharmacy. The vehicle was the brief moments devoted to the brighter side of life. Relations of so cordial a nature as those existing between medicine and pharmacy in Brighton meant much to the medical profession, and he hoped it meant something to pharmacists, who were valued friends. The note struck in this brilliant speech was sustained in the replies of the chairman and the President. Mr. Lloyd Howard, who spoke first, drily remarked that he did not know whether it was good pharmacy for the adjuvant to precede the basis. The Conference threw its net wider than pharmacy, and the excellent spirit of comradeship prevailing between the two allied professions was of happy omen.

Mr. Skinner received an ovation—a personal tribute of unmistakable heartiness—on rising to respond for the Pharmaceutical Society. This was the first time for many years, he said, that he had come across a doctor who knew how to prescribe. (Laughter.) He congratulated Dr. Hall on being so effective—Scotsmen were always effective. There were many members from Scotland present, and they were going to take something back with them. (Laughter.) Representatives of many other parts were also present, including some from the Pharmaceutical Societies of Ireland and Northern Ireland. Both these societies were learning from the few mistakes that the older society had made. He thanked those who had done their best to make this Conference a success. The best thing that all could do was to cultivate the Conference spirit.

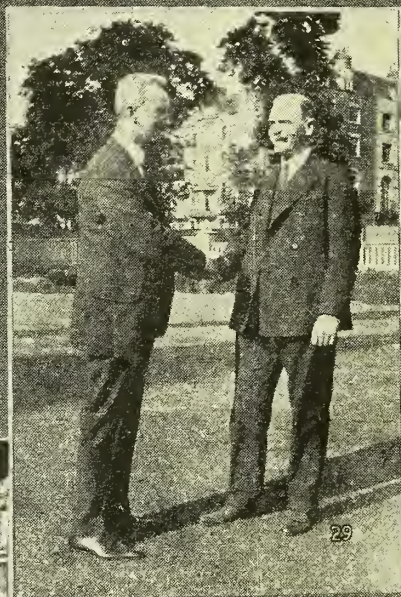
The next toast, "The Mayor and Corporation of Brighton," was submitted by Mr. R. R. Bennett, who remarked that every member of the Conference must have a very warm regard for Brighton and its hospitable people. The Conference had been royally entertained. The Mayor, responding, suggested that there was something in common between the Corporation and chemists: both were dispensers, the Corporation giving "the most glorious tonic" free on 365 days in each day. That day he had been present at a function which thirty old Brightonians attended; five couples had celebrated a diamond wedding, two a golden wedding, and there were also present Matthew and Mark Gunn, the ninety-four-year-old twins, together with people aged ninety-nine and thereabouts. The final toast, "Our Guests," was proposed by Mr. E. Saville Peck and responded to by Mr. J. H. Rothwell (town clerk), bringing to an end a dinner not merely successful but setting a standard that may with advantage be followed in future.

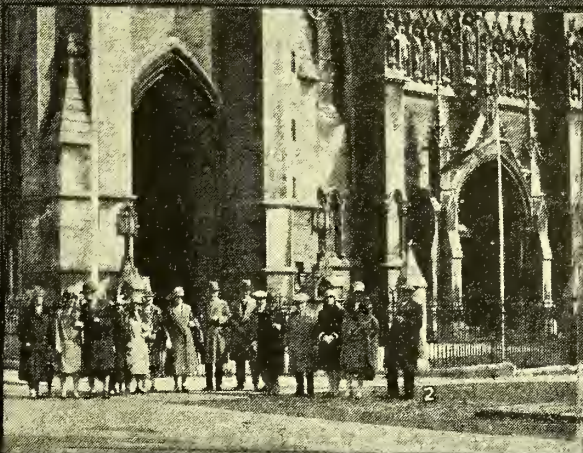
One feature of the social proceedings, which gratified everyone, was the obvious liking of the Mayor and Mayoress for the Conferencers. Besides giving a sumptuous reception on Monday evening in the Pavilion, (Continued on p. 8.)



Conference Pictures

Photos by John Cleworth





Conference Pictures

PHOTOS BY JOHN CLEWORTH



British Pharmaceutical Conference, 1927.

attending the opening proceedings on Tuesday morning, and being honoured guests at the banquet in the evening, both were present at the cabaret and dance on Thursday evening, and stayed till nearly the end. Further, the Mayoress accompanied the ladies on their excursion on Wednesday morning to the "Roadmender Country." Mrs. Major was particularly friendly, and told all she knew about interesting places to visitors who had never been there before.

* * *

THE CHEMIST AND DRUGGIST guide to the "Roadmender Country" was in great request on Wednesday morning, and it was generally agreed that Mr. Cecil Owen had covered the ground faithfully. The weather was beautiful, and on each charabanc was a member of the local executive, who was ready to give details of the various points of interest as they came along. When the party arrived at Mock Bridge, Mrs. Burgess took charge. Permission had been obtained from the proprietors of Mock Bridge House to inspect the garden and to view the room in which Michael Fairless worked and died. Thereafter the party walked to Shermanbury Church and were shepherd back.

* * *

For the ball, held on the evening of June 22, two halls of the Pavilion were set apart—an arrangement which prevented overcrowding, and thus ensured the maximum of comfort. There was bridge for those who did not dance, and the few who did not dance or play bridge appeared to be enjoying themselves thoroughly in conversation. The dancing was by no means perfunctory, those who "took the floor" being evidently skilful exponents of the art.

* * *

The Conference excursion by special train to Eastbourne, and thence by a fleet of smart motor-coaches, sixteen in number, to Beachy Head, was an event that entirely fulfilled its promise. (Incidentally, the wind at the highest point of the cliff played up to the reputation given it in the *C. & D.* booklet, with the result that a few of the visitors decided to remain in their seats during the half-hour allowed for a stroll.) The capital luncheon at Devonshire Park was rendered more enjoyable by the presence of the Mayor of Eastbourne, Miss Hudson, who welcomed the Conference party to the town in a delightful speech. Chemists, said her worship, interpret for the uninstructed public the mysteries of prescriptions, and their customers carry away what they are convinced is going to prove an elixir of life. The Mayor was thanked by the chairman on behalf of the Conference, and by the President on behalf of the Pharmaceutical Society. Two hours later the Eastbourne pharmacists entertained the visitors at tea in the grounds of Devonshire Park, and several of them accompanied the Conference party to the station. Before leaving Devonshire Park Mr. Lloyd Howard proposed a vote of thanks to the Eastbourne Association, and Mr. H. C. Browne (President) made a brief reply.

* * *

The blow on Beachy Head and the kindly care of the Eastbourne chemists rendered everyone physically and spiritually fit for the final fling. This was a function unique in Conference history, for the cabaret entertainment in the Dome on Thursday evening was something quite above the "show" which usually bears that generic title. The musical programme was carried out by Miss Dorothy Kennard and her Prize Male Voice Choir. The choral singing was of a particularly high order, and there were also solos by Miss Cecily Dandy and Mr. Harry Temple. The dancing items were under the supervision of Mlle Nadia Savina, and the classical and character dances by her pupils were delightful. The cabaret entertainment ended shortly after 10 o'clock with the community singing of "Land of Hope and Glory," led by Miss Kennard. This item had to be repeated before the audience would allow Miss Kennard and her choir to go.

In an interlude Mr. Lloyd Howard, with that charm and distinction which characterises all his actions, presented mementoes of the 1927 Conference to various members of the Local Committee. There were gifts for Mrs. Plowright and Mr. Plowright, for Mrs. Burgess and for Mr. Burgess, Mr. Edgar Jones, Mr. Franklin, and Mr. Mackie. The speeches of each recipient betrayed a wistful tenderness at the prospect of parting from friends—many newly made. At 11 o'clock dancing began, and it was kept up until one o'clock—and after. Then all joined hands round the room and "Auld Lang Syne" was sung with fervour. The National Anthem concluded the proceedings—at the Dome.

* * *

The sports day of the Conference gave every promise by the entries of being as popular as the visit to Glen-eagles; but unfortunately the weather in the morning was broken by a south-westerly gale, accompanied by torrential rain. Many went home, but about seventy or eighty were optimistic and waited. By 1.30, the wind mastered the rain and dried the turf. Tennis was played off in the form of mixed doubles; the winners were Mrs. Wells, of the South-West London Association, and Mr. Swanston, of the North London. The bowls international match for the London challenge trophy was won by Scotland, the score being 26 to 17. The players were:—Scotland: Messrs. Bethune, Bayne, Arthur, and Ritchie (skip); England: Messrs. Perrett, Wrench, Downing, and W. B. Dow (skip). Clock golf competition was won by Mr. Wherly with a score of 24, while the miniature golf course competition winner was Mr. J. Collins, Manchester.

* * *

The golf tournament for the Edmund White trophy proved the most exciting of the sports. The wind blew in hurricane strength over the Downs; and as the links are constructed round the old Roman camp, each hole proved a variant owing to this factor, and several reputations went under. There was a good entry; and Mr. S. Furnival, Sheffield, handicap 6, tied with Mr. R. G. Edwards, Manchester, 15, with a score of 80 net. A replay of six holes was made; the game being all square, another six were played, and again it was all square, so the match was decided at the thirteenth hole, the trophy going to Mr. S. Furnival, Sheffield. Luncheon and tea had to be served in the pavilion owing to the gale blowing down the marquee. The President and Mr. Lloyd Howard presided in turn, the Mayor and Mayoress joining the luncheon party. The presentation of the trophies was made about eight o'clock by Mr. Howard, but the golf trophy was held over, as up to this point no decision had been reached. Finally, about 8.30, the players returned, and the President (Mr. H. Skinner) was able to present the Edmund White trophy to Mr. Furnival, and a miniature cup to the runner-up, Mr. Edwards.



37. Scottish Bowls Team (four on left), who won from English Team (four on right).

British Pharmaceutical Conference, 1927.

MR. JOHN CLEWORTH'S PHOTOGRAPHS

As for many years past, Mr. John Cleworth has been busy making pictorial records with his camera at the Conference. We reproduce in this issue (pp. 6 & 7) a selection indicated in the following list by italic type:—

1. Party from Manchester at Arundel.
2. *Mancunians visiting Arundel Church.*
3. *Members arriving for the Opening Session (Mr. J. Rutherford Hill on left).*
4. (See No. 5.)
5. *An Official Group outside Brighton Pavilion. Seated (left to right): Messrs. R. R. Bennett, E. S. Peck, E. White, W. A. H. Naylor, D. Lloyd Howard (chairman), Herbert Skinner (President), L. M. Parry (Vice-President), H. Todd, J. Smith. Standing (left to right): Messrs. N. Evers, C. E. Corfield, H. N. Linstead, H. B. Mackie, J. Plowright, F. W. Burgess, C. H. Hampshire, F. W. Crossley Holland.*
6. (See No. 7.)
7. *Excursion to "Roadmender Country": motor-coaches leaving Pavilion.*
8. Left to right: Mr. D. Dickson, Mrs. Simmons, Mr. E. H. Simmons, Dr. Dorothy Simmons, Mr. W. I. Scholes.
9. *The President (Mr. Skinner) with Mr. R. Bremridge in the Pavilion Grounds.*
10. Left to right: Mr. G. A. Mallinson, Mr. P. F. Rowsell.
11. *Memories of the 1905 Brighton Conference: Mr. Naylor (President, 1905) with Councillor C. G. Yates (joint secretary, 1905).*
12. Left to right: The Presidents of the Liverpool and Manchester Associations (Messrs. Hirst and Collins).
13. The President with Mr. and Mrs. Marns's Daughter.
14. *At the Conference Garden Party, Pavilion Grounds. In foreground: Mr. J. Plowright (right), Mr. A. J. Franklin. Mr. Burgess is being served with tea.*
15. *Left to right: Mr. J. Smith (Dublin), Mr. D. Lloyd Howard (chairman), Mr. H. Todd (Belfast).*
16. Left to right: Mr. E. T. Brewis, Mr. W. A. H. Naylor, Mr. D. Lloyd Howard.
17. *Masonic Group at the Garden Party.*
18. Mr. J. Plowright (left) and Mr. R. Bremridge (right) at the Conference Garden Party.
19. *A Group within a Group: waiting for the official Photograph to be taken.*
20. Motor-coaches at Ashurst.
21. *Teatime at the Garden Party.*
22. Conference Visitors at Beachy Head.
23. *At Beachy Head. In foreground: Mr. and Mrs. J. A. Collins (Manchester).*
24. Arriving at Devonshire Park, Eastbourne.
25. Entering Devonshire Park for luncheon.
26. Mr. E. S. Peck (right) takes leave of the Chairman (centre) and the Chairman-elect (left).
27. Mr. Jack with Lancashire members of the Conference at Eastbourne.
28. Comparing notes at Devonshire Park. Left to right: Mr. D. Marchant, Mr. H. C. Browne, Mr. F. W. Burgess.
29. *The Chairman (Mr. D. Lloyd Howard) and the Chairman-elect (Mr. R. R. Bennett).*
30. At the Conference Garden Party: Mrs. Cleworth (left) and Mrs. Franklin (right).
31. The President, Councillor Yates and other members at the Pavilion.
32. Councillor R. G. Edwards (Manchester) pouring out tea at the Garden Party.
33. (See No. 11.)
34. *At the Garden Party. In foreground (left to right): Messrs. W. I. Scholes, E. H. Simmons, P. F. Rowsell.*
35. *Some of the Guests at Devonshire Park, Eastbourne.*
36. At Devonshire Park, Eastbourne. Mr. H. C. Browne responding to the vote of thanks by Mr. D. Lloyd Howard for the entertainment provided by the Eastbourne chemists on June 23.
37. *Bowling competition. The four on the left are the Scottish team, who won the cup by 26 to 17 points.*
38. Mr. H. N. Linstead playing bowls.
39. The four finalists at Tennis.
40. *Distribution of prizes on the Sports Day.*
41. *The Mayor of Brighton bidding farewell to the President of the Pharmaceutical Society on June 24.*

Copies may be obtained at 1s. each, post free, after July 11, from Mr. John Cleworth, chemist and photographer, 56 Ducie Street, Oxford Road, Manchester.

Births

Notices for insertion in this column must be properly authenticated.

BAILLIE.—At 17 Carleith Quadrant, Shieldhall, on June 15, the wife of Frederick Baillie, chemist and druggist, of a son.

PRENTICE.—At Birkwood, Lanark, on June 20, the wife of John W. Prentice, chemist and druggist, of a son.

Marriages

DUMBLETON—BROWN.—At St. Aldhelm's Church, Bristol, on June 25, Ernest Baden Dumbleton, chemist and druggist, to Kitty Irene Brown.

HENDRY—BURNS.—At St. Giles's Cathedral, Edinburgh, on June 25, David, only son of the late Mr. R. L. Hendry, chemist and druggist, Edinburgh, to Christina May Burns.

PHILP—BLACK.—At Viewfield Baptist Church manse, on June 15, George Philp, chemist and druggist, 24 Guildhall Street, Edinburgh, to Christina Johnston, daughter of the late Mr. Andrew Black, 36 Dewar Street, Dunfermline.

SPENCER—MIDWOOD.—At Queen's Road Wesleyan Church, Hull, on June 18, by the Rev. George Davis, Alfred Spencer, chemist and druggist, Spalding (late of Beverley), to Hilda Midwood.

VICKERS—POST.—At Wandsworth, London, S.W., on June 8, Francis George Hermann Vickers, chemist and druggist, to Eva Marjory Post.

Silver Wedding

EVANS—CHAMBERLEN.—At St. Paul's Church, Hammer-smith, London, W., on July 1, 1902, G. W. Evans, M.P.S., to Florence Chamberlen.

Deaths

CHALMERS.—At Garthdee Nursing Home, Dunfermline, on June 14, Mr. Robert Chalmers, chemist and druggist, Rosyth, only son of Mr. James Chalmers, 47 Reid Street, Dunfermline.

HOLDER.—In St. Bartholomew's Hospital, London, E.C.1, on June 20, Mr. Robert O. G. Holder, London representative of T. F. Bristow & Co., Ltd., perfumery manufacturers, Colindale, N.W.9, aged forty-seven.

LUCAS.—At King's College Hospital, Denmark Hill, London, S.E.5, on June 24, after a long and painful illness, Hattie, the beloved wife of Mr. Harry Lucas, Ph.C., F.C.S., principal of the South of England College of Pharmacy, 186 Clapham Road, S.W.9.

Personalities

SIR ALFRED MOND, Bt., M.P. (Imperial Chemical Industries, Ltd.), received the honorary LL.D. degree of the University of St. Andrews on June 28.

MISS E. E. C. FREEMAN (Girton College) has passed in Class II of Part I of the Cambridge Law Tripos. Miss Freeman is the daughter of Mr. Marshall Freeman, barrister-at-law and Recorder of Stamford, who has been closely connected with pharmacy in Birmingham.

MR. F. CARTWRIGHT, 2 Manitoba Place, Montreal Avenue, Chapel Allerton, Leeds, will in future represent Arthur H. Cox & Co., Ltd., Brighton, in Yorkshire and the four northern counties of Cumberland, Durham, Northumberland and Westmorland, and Mr. A. E. Toovey, 21 Rectory Road, Blackpool, who has joined the representative staff, will represent the company in Lancashire, Cheshire and North Wales.

Trade Notes

BRITISH AMIDOL is offered by E. T. Pearson & Co., Ltd., 35 Gordon Square, London, W.C.1. Samples will be sent on application.

BRITISH INDUSTRIES FAIR.—The dates of the British Industries Fair, to be held in London and Birmingham in 1928, are February 20 to March 2.

CLOSED FOR OUTING.—C. J. Hewlett & Son, Ltd., manufacturing chemists, Charlotte Street and Curtain Road, London, E.C.2, inform us that their premises will be closed on July 2, the date of the staff's outing.

BOB MARTIN'S CONDITION POWDERS for dogs are made by Bob Martin, Ltd., Southport, and have been known to dog fanciers and exhibitors for over thirty-five years. The powders are now being advertised extensively in the daily Press.

SHAMPOO AU CITRON is the latest of the Georges Salomon preparations made from lemon juice. The Shampoo au Citron is put up in compact form, selling at 4d. each package. The London distributors are Robert Ferber, Ltd., Carlton Works, Asylum Road, Peckham, London, S.E.15.

L'ONGLEX MANICURE PREPARATIONS.—Thos. Christy & Co., 412 Old Swan Lane, London, E.C.4, are now the distributors of L'onglex manicure preparations to the wholesale and retail trade. The products include L'onglex permanent nail varnish (retail 6d.), cuticle remover (6d.), and combination set (1s.).

EXCHANGE RATES RECKONER.—A convenient ready reckoner card, pocket size, giving sterling value per lb. corresponding to francs per kilo, has been prepared and issued by Mr. C. A. Charpentier, 25 Bartlett's Buildings, London, E.C.4, for his principals, Charabot & Co., Grasse. It contains also a calendar for this year and notes of the holidays in England and France.


VULPRO GOODS FOR EXPORT.—Ayrton, Saunders & Co., Ltd., Liverpool, have been appointed sole export distributing agents for the "Vulpro" lines (waterproof sheetings, sponge bags, air cushions, etc.) for Africa, Asia, Australia, New Zealand, South America, and the British West Indies. All inquiries for exporting to these countries should therefore be addressed to Messrs. Ayrton, Saunders & Co.

AN ARTISTIC PRICE-LIST.—The DeVilbiss Co. have sent us a beautifully produced price-list of their perfume sprays and perfume lights which is a delight to the eye. The various articles are pictured in colour on a grey background, and the commercial pages are interspersed with colour pictures illustrating indirectly the uses of the articles. It is a fine example of printing, and well suited for displaying perfumery requisites.

HUXLEY'S WITCH HAZEL JELLY.—The Anglo-American Pharmaceutical Co., Ltd., Dingwall Road, East Croydon, offer to send to fifty lady customers of a chemist free packages of Huxley's Witch Hazel Jelly, with the chemist's name and address and other literature in the package. Details are given in the advertising columns of this issue. The company also issue a well-designed showcard (13½ in. by 8½ in.) for the jelly, which can be had on application. The preparation is now packed in collapsible tubes without caps—a useful and convenient novelty.

SCHULTZ-CHARLTON TEST SOLUTION.—Burroughs Wellcome & Co., Snow Hill Buildings, London, E.C., bring to our notice the Wellcome brand of the Schultz-Charlton test solution which is used in the diagnosis of doubtful cases of scarlet fever. The test is usually carried out with scarlet fever antitoxin made in the horse, this antitoxin being available in "Wellcome" brand solution. The solution is issued in phials containing 1 c.c. and 5 c.c. It is one of a wide range prepared at the Wellcome Physiological Research Laboratories.

OVERHEARD AT THE CONFERENCE.—Agitated matron to austere pharmacist from the country: "Have you seen George? The Local Committee are doing very well, but I think they really ought to open a Bureau for Lost Husbands!"



THE CHEMIST AND DRUGGIST

RETAIL & DISPENSING

PRICE LIST

based on definite costing principles

ISSUED QUARTERLY SIXTH YEAR OF PUBLICATION

THE drug index for June shows a reduction of 0.1, the figure being 140.0. This does not mean that there are no changes in prices in the quarterly list (they are as numerous as ever), but that there are adjustments which are sufficient to make a variation necessary in order to maintain a true balance of profit. The dressings index is unchanged at 175.0, but several small alterations in prices have been made.

Trade-marks Applied for

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1926, p. 309.

(From "The Trade-marks Journal," June 1, 1927.)

- "TELM" for medicated suppositories (3). By Société Belge des Produits Rationnels Société Anonyme, Ahiniez-Huy, Belgium. 476,793.
- "KIL-BYTE"; for preparations for treatment of insect bites (3). By Aimée P. Heatley, The Shiel, Church Road, Broadstone, Dorset. B 476,874.
- "SANORAY"; for medicated powders for external use (3). By Edith D. Fitchew, 19 Chatsworth Gardens, Acton, London, W.3. 478,043.
- "EEL-ME"; for an ointment (3). By A. Boden & Son, 107 Canwick Road, Lincoln. 478,324.
- "DROITS"; for medicated tablets for catarrhal complaints (3). By The Galer Trading Co., 21a Campbell Road, Brighton. 479,104.
- "LEOBOR"; for a lotion for external use (3). By Vera Borissova, 177 Kent House Road, Beckenham, Kent. 479,168.
- "SURDEX"; for medicinal chemicals (3) and for surgical instruments, etc. (11). By S. Barter, Ltd., 285 Brockley Road, London, S.E.4. 479,277/278. (Associated.)
- "PESSETTES" and "VITA-STAMINE"; for medicinal chemicals (3). By The Kingsland Hygienic Co., 151 Kingsland Road, London, E.2. 479,364/366.
- "SUMMA"; for all goods (3). By R. Sumner & Co., Ltd., 40 Hanover Street, Liverpool. 479,640. (Associated.)
- "ASPINETS"; for medicinal chemicals (3). By E. Jackson & Co., Ltd., 28a High Street, Crediton. 479,954.
- "MINTIPS"; for all goods (3), goods (42), and all goods (44). By Mintips, Ltd., Audrey House, Ely Place, London, E.C.1. 480,093/094/095. (Associated.)
- "MARO"; for safety razor blades (12). By F. A. Smith, 24 Warrender Road, London, N.19. 477,622.
- "RASPON"; for flavourings (42). By Carter & Sons (Sheffield), Ltd., 335 Attercliffe Road, Sheffield. 480,207.
- "PURITY" with device of figure in classic dress and name and address of applicants ("Purity" disclaimed): for mineral waters (44). By Chiltern Mineral Waters, Ltd., Newland, High Wycombe, Bucks. 477,526.

June Drug Tariff

The following are the chief alterations for June in the Insurance Drug Tariff for England and Wales:—

Lower.—Acaciæ gum. pulv., 3s. 2d. lb.; caffeina, 1s. 4d. oz.; collod. salicylic., 5d. oz.; copaiba, 5s. 6d. lb.; ext. ergotæ, 4s. oz.; ext. ergot. liq., 10s. lb.; ext. ipecac. liq., 3s. 4d. oz.; ol. amygdalæ, 6s. lb.; ol. caryoph., 10s. lb.; ol. limonis, 14s. lb.; paraff. dur., 9d. lb.; pot. carb., 1s. 3d. lb.; succus allii, 4s. 6d. lb.; theobrom. et sod. salicyl., 1s. oz.; tr. ergotæ ammon., 7s. 3d. lb.

Higher.—Acid. citric. pulv., 2s. 7d. lb.; acid. tartaric. pulv., 1s. 11d. lb.; emuls. ol. morrhuae, 1s. 8d. lb.; emuls. ol. morrh. c. hypoph., 2s. 8d. lb.; ext. cannab. ind., 20s. oz.; ext. filic. iod., 1s. 2d. oz.; lin. methyl. sal. co., 6s. 6d. lb.; lin. pot. iod. c. sap., 4s. 9d. lb.; ol. eucalypt., 3s. 6d. lb.; ol. morrhuae, 12s. 6d. gal.; ol. olivæ, 17s. gal.; pot. tart. arid., 1s. 6d. lb.; tr. aloes, 4s. lb.; ung. hydrarg., 5s. 3d. lb.; ung. hyd. co., 5s. lb.; ung. hyd. nit., 4s. lb.

Observations and Reflections

By Xrayser III

When is Pride Justifiable?

Your Special Issue is a sufficient and complete answer to the question, and it provides one with an opportunity of saying that the winning of money in the pursuit of one's vocation is not a legitimate source of pride unless it is accompanied by self-respect and an intelligent interest in the history of one's calling. With these elements as a foundation for the practice of our profession, together with manifestations of loyalty towards our fellow-practitioners, we may achieve successes in which we may take justifiable pride. Your special issue is a fine example of what can be accomplished by modern methods of reproduction in the way of introducing to readers everywhere old MSS. and books which are stored in libraries scattered throughout Europe. The coloured reproductions have, in my opinion, never been excelled, not even in books devoted to present-day processes of colour photography. The excellent taste and equally excellent execution of the technical work and the text of "The Beginnings of Pharmacy" are so admirable that I am fain to hope that many of your readers will express a desire to have those pages put into suitable boards, so that they be handed down to posterity as an example of the fine work which a professional journal had the enterprise to undertake in the year 1927, from which it will appear that there was not merely an antiquarian interest in curious pots and utensils, but a fervent interest in the development of the art and science of ministering to the bodily ills of the human race. The exquisite reproductions of the beautiful miniatures reflect the greatest credit upon the block-makers and the printers. And no little praise is due to the artist who so entirely has caught the spirit of the Latin script and translated it into his own legends.

Proper Pride

in our craft should be quickened by your endeavour, as the main theme of your Special Issue, to show how important has been the business of the chemist or pharmacist in all stages of the history of the civilised world. I like your description of us as practising the oldest and most dignified occupation in the world, and I trust your readers' pride in ancestry will be stimulated where it already exists, while we should all hope that the germs of such proper pride may, as the result of your efforts, be effectually planted in the minds of others. Egypt, Assyria, Greece, Rome and Arabia are all made to yield their quota towards your admirable survey of the world history of pharmacy, with the result that there is now no gap in the record from the beginning more than three thousand years ago right up to the present time. It is proved beyond the power of contradiction that the pride of chemists and druggists who are proud of their business is justifiable, and this is done in a special issue of a trade paper, of which everyone concerned in the production may equally be justifiably proud.

"The Illustrious Galen"

and the influence which his works exerted upon the teaching and practice of medicine and surgery for fourteen centuries cannot fail to interest all who are concerned with the progress of knowledge. His medical teachings are so interwoven with the philosophical theories which he had inherited and assimilated that in succeeding years the medical considerations acquired a dogmatic force because of his philosophical beliefs, which completely dominated physicians down to the time of the iatro-chemists and the anatomists of the human body in the sixteenth century. As to the great extent that the Galenic writings were used and valued there has not been much to guide the ordinary student until the appearance of Dr. Donald Campbell's book on "Arabian Medicine," which appeared last year. In the second volume of it the author has given a catalogue of the Latin versions of Galen's works and enumerates the MSS. of them which are to be found in the principal European libraries. He also indicates each of the writings of which there are in existence Greek, Arabic,

Hebrew and Syriac MSS. I have not counted the number of MSS. of each work, but of the "De Simplicium Medicamentorum" alone there are almost fifty. Printed Latin translations of the several works are likewise specified, but, as Dr. Campbell's account of these embraces only the British Museum copies (and his own), it is not complete. For the first time there is now provided, by Dr. Campbell's industry, an opportunity for scholars to attempt a survey of the actions and reactions of the Galenic doctrines during the Middle Ages.

A Curious Example

of the bigotry of the Galenists of this country is the case of Dr. Geynes, who was not admitted to the Fellowship of the College of Physicians of London in 1560 until he renounced his scepticism as to the infallibility of Galen. Some forty years later Turquet de Mayerne himself was expelled from the College of Physicians of Paris because of his advocacy of the Paracelsian teachings in opposition to those of Galen. The said College exhorted all physicians "that they will drive the said Turquet and all such monsters of men and opinions out of their company and coasts; and that they will constantly continue in the doctrines of Hippocrates and Galen."

Recipes

of especial value add to the interest of the Special Issue. I allude particularly to those for vanishing creams (p. 780) and hair-removing preparations (p. 788), both of which convey to me the impression of having been constructed by experts who know their job. I am glad to observe that we are to be favoured with still more information about vanishing creams, because those preparations are undoubtedly most popular at the present time. What is popular among toilet preparations represents a sure and certain source of profit for the time being; but in this, as in other directions, fashions change, so we need to know all we can be taught about the production of vanishing creams. While the main demand is, of course, for particular proprietary preparations, there is always the chance of opportunity being provided for introducing a vanishing cream of one's own, if only in the case of very special customers. Ability to make up something specially for his clients should be maintained by every practising pharmacist, and the C. & D. renders us invaluable service by helping us to maintain such ability. The effect of changing fashion on toilet requisites applies equally to hair-removing preparations. My experience, like that of your contributor on this subject, is that the razor is gradually recovering its ground as the hair remover. But even the safety razor needs the assistance of a satisfactory cream. I am glad, therefore, to note the formulas given (p. 789) for two creams of this kind, and I would suggest putting up the product of the second formula in covered pots, as being a decided improvement upon the use of collapsible tubes.

Pricing Offices

are to most of us places of mystery where our N.H.I. scripts go as into an automatic machine, whence money ultimately comes as our modest recompense for putting up with much inconvenience in the service of the State. Your description of the South-Eastern Pricing Office (p. 845 of the Special Issue), which is described as the most important English one, comes as a revelation of all the work that is done at such places and how it is done. Important points that strike me are the facility attained by the young lady pricers in deciphering prescriptions and the amount of money paid to some chemists on the panel. It would be interesting to know whether or not the seven chemists who shared the £1,200 for one month's dispensing consider that Insurance dispensing pays.

CANADIAN MEDICINAL CHEMICAL OUTPUT.—There were 126 plants producing medicinal and pharmaceutical preparations in 1925, compared with 120 in the previous year. Production for the year was valued at \$15,145,641, against \$13,987,849 in 1925. Employees numbered 2,358, and their yearly earnings totalled \$2,842,662. Imports of medicinal pharmaceutical preparations and other drugs were valued at \$3,100,911, against \$2,968,089 in 1925.

Radiant Energy

Radiant energy administered directly (by irradiation) or indirectly (as irradiated fat) is inadequate to effect improvement in the human body if the diet is deficient in Vitamins A and D.

Glaxo is rich in both these Vitamins, besides containing others necessary to health, because the milk from which it is manufactured is the product of cows which feed *all the year round* on materials rich in vitamins. No other milk food equals Glaxo for richness in vitamins, and Glaxo was never better than it is at present.



"Builds Bonnie Babies"

Retail Price	Trade Price	Cartons Contain
1/6	14/5 net per doz.	2 or 3 dozen
2/6	24/- net per doz.	1 or 2 dozen
4/6	43/2 net per doz.	1 or 2 dozen
7/6	72/- net per doz.	1/2 or 1 dozen

Make a display of Glaxo. For supplies of display material and literature write to the Sales Manager, Glaxo, 56 Osnaburgh St., London, N.W.

'CONSTIPLETS' FOR CONSTIPATION

R. GIBBINS & CO.
Wholesale & Manufacturing Pharmaceutical Specialists,
1 Birkbeck Road, London, E.8

50 Years' Reputation.

B.P. and Industrial
Drums or
Tins

GLYCERINE DARTING SOAP LANOLINE

TRADE MARK

Samples Free.

EDWARD POWEN & CO. (7/- doz.) 14 America Sq. (less 43/-) London, E.C.3

Tubes 7/6 & 15/- (less 33 1/3 doz.)

WRITE FOR SAMPLE

MAKE

SANTAS

TOILET ROLLS

YOUR LEADING LINE.

40% OVER PROFIT

Aromatic & Synthetic Chemicals Essential Oils, &c.

ENQUIRIES INVITED BY
THE MANUFACTURERS—

A. BOAKE, ROBERTS & CO. Ltd.

STRATFORD, LONDON, E.15

Telegrams: "Boake. Phone, London."
Telephone: Maryland 1050 (6 lines).

Tubes of
24 tablets,
retail 3/6

From Wholesaler,
or the British
Empire Agents,

UPSHER & SMITH
DIGITALIS
CAT UNIT TABLETS

MATTHEWS LABORATORIES, LTD., CLIFTON, BRISTOL, ENG.

EXTRA
RECTIFIED

ALCOHOL
FOR
TINCTURES

J. BURROUGH, Ltd.

1 Cale Distillery,
LAMBETH, S.E.11

Editorial Articles

Merchandise Marks Act

SINCE we last referred to this Act in our issue of June 4, (p. 680) some interesting developments have taken place. It will be remembered that the Board of Trade recently issued a notice to exempt "uncompounded drugs and medicines" from liability to the requirement, under Section 1 (3) of the Act, that imported goods bearing a British name or trade mark must also bear an indication of origin. At the time this notice was published there was a good deal of misunderstanding as to what products the exemption would cover. After hearing the views of the various interests concerned the department propose to amend the terms of the proposed Order to "substances sold by or to a retail chemist for medicinal purposes." This appeared to be a little more satisfactory, but there was still the fact that while the wholesale and retail druggists were covered, the trade of the importing merchant, who sells to the wholesale druggist, continued liable to the marking provisions of the Act. The reason for this discrimination between classes of traders handling the same products is difficult to appreciate—possibly it was an oversight. It would have been unfair to make the merchant importer, who sells, say, a cwt. of Epsom salt to the wholesale druggist, mark his package with an indication of origin and allow the latter to repack under his own name and pass it on to the retailer, who in turn repacks under his name, to do so without giving an indication of origin. Again, the phrase "for medicinal purposes" is not sufficiently

elastic to meet the requirements of the case, so now we understand, the authorities are considering widening the Exemption Order to cover:—

"UNCOMPOUNDED DRUGS, FROM WHATEVER SOURCE DERIVED, WHICH ARE SOLD FOR MEDICINAL PURPOSES."

There is to be one exception to the Order, namely, imported substances sold in their original packages to the public. This means that foreign pharmaceutical specialities will continue liable to the provisions of the Act, but as they are almost invariably sold in packages bearing the name of the foreign maker the necessity for any further marking with an indication of origin does not arise. As amended in accordance with the final proposals of the various trading interests the Exemption Order will practically free the trade of the importer, wholesale druggist, and the retail pharmacist from liability to the provisions of the Act, so far as pharmaceutical products are concerned, except, of course, in foreign specialities. The clause in the Act under which the application was made for exemption, provides that if it appears to the Board of Trade that, "having regard to the special circumstances of the trade, difficulties would arise if this section was applied to goods of any class or description, and that public interests in this country would not be materially prejudiced, they may direct that Section 1 shall not apply to such goods." The pharmacist is compelled by law to put his name and address on many products he sells, and it is a well-established custom of the trade for all pharmaceutical products sold to the public to be labelled with the name and address of the retailer or with that of a wholesaler. There is no doubt that the trade in pharmaceutical chemicals is vastly different from many others, being burdened with many regulations of one kind and another, some of which conflict with this new legislation, and it appears to have been an easy matter to satisfy the Board of Trade that it was a trade where, "owing to special circumstances, difficulties would arise," if the Act was enforced. The Exemption Order will appear in full in the "Board of Trade Journal" (June 30). The trade has been put to a good deal of expense and inconvenience in making arrangements to endeavour to conform to the marking of foreign goods, and it is rather unfortunate that the Board of Trade did not take the precaution of inquiring into the conditions of the trade and provide for its exclusion at the time the Act was drawn up.

The Mercury Barometer

So long as the American demand for mercury continued active and imports into this country were limited, the price held up very well at the highly inflated level of nearly £23 per bottle, usual spot terms. Sales of small lots were, in fact, reported until towards the end of May at £22 15s. to £23. Rather a sudden break ensued within that period, as mentioned in our Trade Report of May 23, and this was attributed to resales of certain quantities booked for shipment to Japan, but which were not taken up owing to disturbed financial conditions. Whatever these quantities actually amounted to, the market since has remained unsettled, and the weaker tendency during the last few weeks was evidently accelerated by indifferent trade demand on this side. A similar position was well in evidence in the United States under increased imports. Another important point has been the surprisingly heavy increase in home imports for last month. The total, indeed, was as much as 4,173 bottles, against only 898 bottles for April. The Board of Trade returns for May deserve close study, the figures covering the last five months, with comparisons for the corresponding period in the two preceding years, being as follows:—

Bottles	1925 Jan.-May	1926 Jan.-May	1927 Jan.-May	1927 May
U.K. imports ..	9,352	6,166	10,627	4,173
U.K. re-exports ..	2,537	1,131	336	52
U.K. net imports ..	6,815	5,035	10,291	4,121

With this big increase in imports it will be seen that the total arrivals for the five months represent 10,627 bottles, an excess of roughly 4,500 bottles compared with the same months last year and nearly 1,300 bottles against two years previous. The re-exports having remained absurdly small so far this year, the fact that the monthly average of the imports works out at 2,125 bottles, or more than double current home trade needs (normally placed at about 1,000 bottles a month), does not suggest a healthy statistical situation. Viewed in another light, an analysis of the figures tabulated above indicates that considerable stocks have been accumulated in dealers' or speculators' hands in this market, and its apparent top-heaviness need cause no surprise. The current price on the spot at around £20 10s. per bottle denotes a total setback of fully £2 10s. from the top figure reached this year. Admittedly this market was, early this year, influenced by a certain scarcity as well as continued large imports by the United States, which amounted to over 10,000 bottles for the first months of the year, and thus was created the impression that supplies for other countries were none too plentiful. This reasoning, however, has proved somewhat deceptive in the light of more recent developments, particularly the large surplus accumulated on this market. As well over 4,000 bottles were imported by the United States during April, there is little reason to doubt that stocks there also have been considerably on the increase, especially as U.S. demand has been checked since May. In January the London spot price based on the customary discount was about £15 per bottle, and consumers until towards mid-March continued to buy strictly from hand to mouth in spite of a steadily rising market. Subsequently they became rather alarmed in face of the American demand, and this undoubtedly gave an excellent opportunity to speculators to force up the price. With the Italian and Spanish mines well sold up or committed to heavy forward contracts with European and American importers, the market has been practically in the hands of the merchant or speculative element. The last important sales effected by the Council of Administration of the Almaden Mines were, so far as could be ascertained, on the basis of £14 per bottle, delivered free on truck nearest railway station, so that, even allowing for freight and insurance charges and all other handling costs, an unusually wide margin of profit has probably been secured in the disposal of this mercury to consumers. The rapid rise in London and New York obviously raised f.o.b. terms for further shipments from the Continent to considerably higher figures, ranging well upward of £20 per bottle. The abnormally wide disparity which existed between shippers' terms and the distributing markets has been nullified by the substantial break in the spot value, while the New York quotation (duty-paid), which at the height of the "boom" touched \$127, slipped back to under \$116 per bottle. It would certainly seem idle to refute the argument put forward on the part of trade buyers that market manipulation played at least a part in the establishment of a price-level practically corresponding to the high average attained within the abnormal war-period. It is probable that production this year will again be stimulated both in Italy and Spain. The returns of Italian production for last year are not yet available, and varied for the previous four years between about 45,000 and 48,000 bottles. There was a decrease in the American output for 1926 of about 1,500 bottles to 7,445 bottles, but a large increase is expected for the current year; and a similar expectation is entertained as regards Spain. American consumption is likely to continue on a large scale, but the outlet in certain directions may be restricted as a result of the high cost. The trend of the market, therefore, is at the moment very uncertain. [Since the above was written the market has advanced about 30s. per bottle, the latest particulars being given in the Trade Report.]

British Pharmaceutical Conference, 1927

THE PROCEEDINGS

In the Special Issue of June 25 (pp. 782 *et seq.*) we printed the opening events of the British Pharmaceutical Conference at Brighton on June 20 and 21, and gave an abstract of the chairman's address, together with brief summaries of the scientific papers. We now conclude our report by adding an account of the Science Section, the delegates' meeting on June 21, the closing session, and social functions.

Science Section—Tuesday Morning

The chairman first called on Dr. L. A. Parry for his paper:—

The Therapeutic Value of Ultra-Violet Rays

By L. A. PARRY, M.D., B.S., F.R.C.S.

[ABSTRACT]

THE treatment of disease by sunlight was taught many hundreds of years ago by Hippocrates, Celsus and Galen, but it was only at the beginning of the present century, mainly owing to the work of Rollier of Leysin, that ultra-violet radiation has been scientifically understood and employed. The use of natural radiation is open and free, and no special training is required to utilise sunlight, though a few words of warning are necessary, as their application must be carefully and gradually made to the bare skin. Clothing absorbs practically the whole of the beneficial rays, but the beneficial effects of natural sunlight can be enjoyed privately and comfortably in rooms fitted with vitra glass, which contains a large proportion of quartz and transmits ultra-violet light. An average method of using the sun's rays is as follows. For the first day the bare legs up to the knees are exposed for about fifteen minutes; the next day the same parts are exposed for thirty minutes, the remainder of the legs for fifteen minutes; the third day, the lower half of the legs for forty-five minutes, the upper half for thirty minutes, and the arms for fifteen minutes, and so on, a little more of the body being added each day, for a little longer, so that at the end of ten days or so the whole body can be radiated for some hours. This procedure may have to be modified in individual cases, and a watch must be kept to see that no ill-effects are caused. Sunlight and pure fresh air must be of more value than rays from a lamp, however effectual, in a closed room, but the possibility of obtaining natural rays is limited to a few months in the year, or generally even less. In the bad weather we must, of course, be content with artificial rays. The effects of ultra-violet radiation is by no means limited to the part exposed. The natural reddening of the skin is followed later by pigmentation, and this may be looked upon as a good sign, proving that the patient is a fit subject for the rays. This wonderful remedy of sunlight is just now very fashionable, and rather apt to be overrated. The list of conditions for which sunlight has been recommended numbers 134—from abscesses and alopecia to xanthelasma and x-ray dermatitis—which recalls the worst type of patent medicine advertisement. The well-deserved reputation of ultra-violet rays should not be injured by making exorbitant claims. Among the conditions definitely improved by heliotherapy, tuberculosis may be placed first. In that variety of surgical tuberculosis which attacks bones and joints the results are little short of marvellous. Frail children with crippled joints and horrible open wounds change in a short time from nervous and lethargic beings into bright and healthy children, largely as a result of the scientific application of ultra-violet rays. Tubercle of the lung is exceptional, and some cases are made worse by light treatment. Rickets is a disease of darkness for which irradiation

may be considered as specific, the catarrhs commonly associated with bone enlargements of rickets clearing up with the sunlight cure. In Hove and Brighton, towns with the largest amount of sunshine in the Kingdom (though others have the presumption to claim this also), rickets has almost been abolished with the aid of a pure milk supply, excellent sanitation, and facilities for ultra-violet ray treatment in winter. The rays are beneficial in the various manifestations of fibrositis, e.g., lumbago, pleurodynia, and other varieties of muscular rheumatism. Anæmia, and debility following influenza, measles, and whooping cough, etc., also derive much benefit from light treatment. Lastly, resistance to various skin diseases, especially those due to infection such as boils and carbuncles, is increased in many instances by ray treatment. The dangers of improper or unskilful use of ultra-violet rays include the risk of severe burns, whilst some susceptible patients may exhibit symptoms of sun-stroke, pyrexia, malaise, and general disturbance. These are guarded against by avoidance initially of too prolonged or too extensive exposure to ultra-violet radiation.

DISCUSSION

Dr. ELLIS (Hove) pointed out that Dr. Parry had left out a good deal of what might be said. He urged that there should be careful distinction between violet and ultra-violet rays, as the former had nothing to do with the latter, and apparatus for the violet ray treatment was sold and given by almost anyone. Some of the most valuable natural rays were cut out by the upper atmosphere, and the shorter wave-lengths did not come down to us. Artificially to get the whole length of the spectrum is to use two or three ultra-violet lamps—mercury, tungsten, etc. After describing the effect of ultra-violet rays on sugar, the speaker said that therapeutic treatment was in the early stages at present, and in the future treatment would be by wave-lengths of the spectrum instead of by rays. He next dealt with the use and effect of the rays in the brewing industry. Regarding Dr. Parry's suggestion that the value of the rays in 134 diseases was exaggeration, Dr. Ellis asked how many diseases there were to be treated? He suggested there might be 134,000, and he did not think they were exaggerating. The claim he illustrated by citing a large number of diseases improved by increasing, or due to lack of, calcium and phosphorus metabolism. Ultra-violet rays will become increasingly valuable to doctors and patients, but whether to chemists remained to be seen.

Mr. W. A. WHATMOUGH said he would like to see a little more knowledge and a little less mystery in regard to this subject. Ergosterol treated with ultra-violet produced vitamin D, which must be supplied with other necessities. It does not matter whether the rays are obtained from lamps or naturally, if the right wave-length is used. Pharmaceutical research, he pointed out, had been responsible for the advances in this direction.

Mr. R. R. BENNERT asked if Dr. Parry had personal experience of irradiation of the skin in conjunction with cholesterol or ergosterol. Ergosterol is now available commercially, and is present in most commercial samples of cholesterol. It is a logical deduction that a solution of ergosterol used on the skin would give the vitamin D necessary.

Mr. ASHTON drew attention to the danger attending treatment by ultra-violet rays when applied by unqualified persons.

Mr. WOKES asked if some clothing, such as artificial silk, allows light to pass through. He also pointed out that lamps vary sometimes by as much as 200 or 300 per cent. in the energy given out, and that some means of measuring it is necessary. Potassium nitrite is being used for this purpose in Liverpool, the decomposition

British Pharmaceutical Conference, 1927.

products being measured. Preparations being used for vitamin D vary considerably, owing, he thought, to the effect of ergosterol not being understood.

Mr. EVERS said he would be interested to have the author's opinion on the relation of ultra-violet rays and cod-liver oil in the treatment of rickets.

Among further questions was an inquiry for a remedy for sunburn, the speaker saying he had found calamine and witch hazel the most successful he had tried, while another member asked as to the effect of ultra-violet rays on the hair and eyes.

Dr. PARRY, in reply, said he and Dr. Ellis were really in agreement. Artificial silk lets in more rays than other clothing, but it does cut off some. The point regarding the energy from the lamps is very important. He still believed in cod-liver oil, one of the finest drugs in the Pharmacopœia, but he would not rely on one form of treatment. He agreed with calamine for sunburn, but was not optimistic regarding the use of the rays for senile baldness; there are definite dangers to the eyes.

The chairman expressed a hearty vote of thanks to the author.

The next paper, read in abstract by Mr. R. R. Bennett, was:—

Solution of Ammonium Acetate, B.P.

By NOEL L. ALLPORT and T. TUSTING COCKING, F.I.C.

[ABSTRACT]

THE instructions in the British Pharmacopœia for the preparation of liquor ammonii acetatis are insufficient to ensure uniformity. This variation may give rise to accusations of inaccurate dispensing, while on the other hand, if it be dispensed with potassium bicarbonate, a satisfactory mixture or a burst bottle may result. The solution of ammonium acetate will vary considerably, according to the interpretation placed on the word "neutralise" in the B.P. monograph. Acetic acid and ammonia are weak electrolytes, and, curiously enough, both have the same dissociation constant ($K=1.8 \times 10^{-5}$), so that the neutral point of ammonium acetate is at PH 7.0 (that for pure water). The neutralisation curve of acetic acid and ammonia is very flat, owing to the strong buffer action of ammonium acetate, and the neutral point can be found only by very careful determination of the hydrogen ion concentration. Among Pharmacopœial indicators litmus is the only one with the required range, the colour change being from PH 5.0 to PH 8.0. This is a wide range for an indicator changing from red to blue, because the varying shades of purple are extremely difficult to differentiate. Unless very careful comparison of colours be made with standard buffer solutions the neutral colour may be said to range from PH 6.5 to 7.5., and such solutions of ammonium acetate within this range should be considered as being prepared according to Pharmacopœial instructions. When litmus is used to determine the "exact neutrality" of a substance like ammonium acetate the task becomes well-nigh impossible, and in the case of liquor ammonii acetatis this is further complicated by the presence of carbonic acid.

By directing that ammonium carbonate be used for neutralising the acetic acid, it is evident that the Pharmacopœia authorities intended this preparation to contain carbonic acid (free or combined). In the 1898 B.P. a definite amount of ammonium carbonate was ordered to be neutralised with acetic acid. The 1864 Pharmacopœia includes a simple solution of ammonia acetate made by neutralising acetic acid with ammonia. The British Pharmaceutical Codex recommends that "neutralisation" be carried to a stage where the resulting solution does not effervesce, either with a crystal of potassium bicarbonate or of citric acid. Experiments have shown that this is an impossibility, as a solution which still effervesces slowly with potassium bicarbonate will effervesce briskly with citric acid.

The 1914 preparation contains ammonium acetate in solution, equivalent to the acetic acid ordered, but, in addition, ammonium bicarbonate and carbonic acid are present. Although a "literal" interpretation of the B.P. instructions means "adjust to PH 7.0," the most

suitable solution for dispensing purposes is one with a reaction of PH 8.0, which of course means a further increase in the ammonia content. Precise standards cannot be laid down for B.P. solution of ammonium acetate, because the reaction thereof depends upon the balance existing between the ammonium, acetic, carbonic and bicarbonate ions, and not upon the actual amount of ammonia present. A solution made at a low temperature will contain more carbonic acid than one wherein the reaction is vigorous, and in the former instance more ammonium carbonate will be required to balance the carbonic acid than in the latter case.

Table I shows the actual amounts of ammonia and carbonic acid present in small batches of "solution of ammonium acetate" made by "neutralising" acetic acid with ammonium carbonate, and adjusting by the addition of ammonium carbonate to PH 7.0, 7.6 and 8.0. A fourth solution was made and neutralised to PH 7.0 by the use of solution of ammonia instead of ammonium carbonate. The PH value was determined by the "Capillator" method, using phenol red and bromo thymol blue as indicators.

TABLE I

	Ammonium Acetate "neutralised" with Ammonium Carbonate			Solution with Ammonia		Theoretical
	1	2	3	4	5	
PH	7.0	7.6	8.0	7.0	7.0	7.0
Specific gravity ..	1.0181	1.0201	1.0208	1.0160	—	—
Total CH_3COOH per cent. w/v ..	5.60	5.60	5.60	5.60	5.60	5.60
Total NH_3 per cent. w/v ..	1.67	1.76	1.87	1.56	1.59	1.59
Total CO_2 per cent. w/v ..	0.32	0.5	0.72	none	none	none
NH_3 in excess of the equivalent of the acetic acid per cent. w/v ..	0.08	0.17	0.28	none	none	none
Or per cent. excess ..	5.0	10.7	17.5	—	—	—
Equivalent to:— $\text{CH}_3\text{COONH}_4$ per cent. w/v ..	7.19	7.19	7.19	7.06	7.19	7.19
NH_4HCO_3 per cent. w/v ..	0.37	0.79	1.30	none	none	none
H_2CO_3 per cent. w/v ..	0.16	0.10	none	none	none	none
Ratio $\frac{\text{NH}_4\text{HCO}_3}{\text{H}_2\text{CO}_3}$..	$\frac{1}{0.55}$	$\frac{1}{0.16}$	$\frac{1}{0.0}$	—	—	—

A solution made strictly according to B.P. instructions contains when fresh 5.0 per cent. excess of ammonia, and has a specific gravity higher than the B.P. figure. The ratios $\text{NH}_4\text{HCO}_3/\text{H}_2\text{CO}_3$ are interesting as showing that at absolute neutrality one half of the total CO_2 has been converted into bicarbonate, whereas at PH 8.0 the whole of it is so combined. On keeping these solutions readily lost carbon dioxide and became more alkaline. On mixing a strong solution of potassium bicarbonate with a neutral solution of ammonium acetate, the ammonium bicarbonate formed on interchange of radicals being unstable (except in dilute solution), decomposes into a more basic carbonate with liberation of CO_2 . It is often assumed erroneously by pharmacists that the slow effervescence is due to the acidity of the ammonium acetate solution. Adjusting the solution to PH 8.0 is sufficient to prevent the liberation of CO_2 on the addition of potassium bicarbonate, but this increases the ammonia considerably above the theoretical amount.

Concentrated Solution of Ammonium Acetate 1-7.—Concentrated solutions in common use do not exactly represent the freshly made B.P. preparation on dilution, because of the impossibility of concentrating the dissolved carbon dioxide eight times. Three small batches of concentrated solution (1-7) were prepared, the acetic acid equivalent to eight times the B.P. quantity being neutralised by ammonium carbonate until the solution became so concentrated that reaction ceased when the final "neutralisation" and adjustments were made with

British Pharmaceutical Conference, 1927.

solution of ammonia. In determining the PH values of the strong solutions it was found necessary to dilute a few drops of the solution with neutral water before adding the indicator. The 1-7 dilutions were made with distilled water, free from carbon dioxide.

TABLE II

	1		2		3	
	Strong solution	Diluted 1-7	Strong solution	Diluted 1-7	Strong solution	Diluted 1-7
PH ..	—	7.0	—	7.6	—	8.0
Specific gravity ..	1.0975	1.0163	1.0979	1.0170	1.0992	1.0172
Total CH_3COOH per cent. w/v ..	44.8	5.60	44.8	5.60	44.8	5.60
Total NH_3 per cent. w/v ..	12.9	1.61	13.0	1.62	13.3	1.66
Total CO_2 per cent. w/v ..	1.04	0.13	1.36	0.17	1.52	0.19
NH_3 in excess of equivalent of acetic acid per cent. w/v ..	0.16	0.02	0.24	0.03	0.56	0.07
Equals per cent. excess NH_3 ..	—	1.26	—	1.9	—	4.4
Equivalent to :— $\text{CH}_3\text{COONH}_4$ per cent. w/v ..	57.5	7.19	57.5	7.19	57.5	7.19
NH_4HCO_3 per cent. w/v ..	0.7	0.09	1.1	0.14	2.6	0.32
H_2CO_3 per cent. w/v ..	0.9	0.11	1.0	0.13	0.1	0.01
Ratio $\frac{\text{NH}_4\text{HCO}_3}{\text{S}_2\text{CO}_3}$..	—	$\frac{1}{1.6}$	—	$\frac{1}{1.2}$	—	$\frac{1}{0.04}$

Comparisons of the figures in Tables I and II show that carbonic acid is very much more soluble in a strong solution of ammonium acetate, but the increase in solubility is not equivalent to the concentration. A necessary consequence is that much less ammonia is required to change the PH. The excess of ammonia is only 1.26 to 4.4 per cent. for the concentrated solutions, as against 5.0 to 17.5 for the dilute preparations. The ratio $\frac{\text{NH}_4\text{HCO}_3}{\text{H}_2\text{CO}_3}$ is not constant for the same PH, indicating

that the reaction is dependent on the complex balance existing between the ammonium, acetic, carbonic and bicarbonate ions present in the solutions. These concentrated solutions, like the B.P. preparations, lost CO_2 on keeping and became more alkaline.

Table III shows the PH values and the excess or defect of ammonia of a number of concentrated solutions obtained from different manufacturers.

TABLE III

—	1	2	3	4	5	6	7
PH ..	5.6	6.0	6.1	6.4	6.4	7.3	7.5
Per cent. excess (+) or defect (—) of NH_3 required to balance the acetic acid ..	—12.5	—4.0	—3.0	—1.0	—0.5	+1.5	+3.3

The above researches were carried out in the laboratories of The British Drug Houses, Ltd.

DISCUSSION

The CHAIRMAN, in inviting discussion on this paper, remarked that it was evident that there was still scope for original work on well-known remedies.

Mr. J. R. HILL pointed out that the object of the British Pharmacopœia was to have a solution of ammonium acetate containing a definite percentage and saturated with carbon dioxide. But acetic acid was not necessarily of the B.P. standard, and ammonium carbonate was a not very definite mixture of two salts. Ammonium acetate in aqueous solution dissociated to some extent. He (the speaker) suggested in Edinburgh, twenty years ago, the plan of standardising the acetic acid and

ammonium carbonate, and using the equivalents needed. The resulting solution keeps well.

Mr. MALLINSON remarked that one of the most useful functions of the Conference was the opportunities it gave to investigators to announce results. As one who had to convince the lay mind in cases of alleged inaccurate dispensing, he congratulated the authors.

Mr. CORFIELD also praised the paper as a valuable one. The method suggested by Mr. Rutherford Hill was practically that of the new United States Pharmacopœia. Medical men might give some indication as to what kind of a solution they want. He (the speaker) was rather surprised to hear of charges of inaccurate dispensing, as the only B.P. standard available was that for acetic acid.

Mr. A. J. JONES related an investigation that he carried out several years ago on samples of concentrated solutions of the two strengths 1 to 4 and 1 in 8: in most cases the diluted solutions prepared from these did not correspond. The concentrated solution, he suggested, should be stabilised rather than the other. He was doubtful of the value of the universal indicator; minute additions were not detected, owing to buffering action.

Mr. BENNETT, replying to the discussion, pointed out that there was a good deal about concentrated solutions in the paper. A concentrated solution, when diluted, cannot represent a freshly made B.P. solution.

The chairman then called on Mr. Evers to give his paper on :—

A Colour Test for Ergot Alkaloids

By NORMAN EVERS, B.Sc., F.I.C.

[ABSTRACT]

THE accurate assay of ergot has always been a matter of some difficulty, and though physiological standardisation is the only wholly reliable method, it would, however, be convenient to have a simple preliminary test to reject inactive preparations. Tanret ("Comptes Rendus," LXXXI, p. 896) in 1875 described ergotinine and gave a reaction with fairly concentrated sulphuric acid, which has been continually rediscovered since as various modifications, a trace of ferric chloride being added to sulphuric acid (or acetic acid), while hydrogen peroxide is claimed to be still more delicate than the ferric chloride. Barger and Carr ("J.C.S.," Vol. 91, p. 337) in 1907 showed that the colour reaction is given by both ergotoxine and inactive ergotinine. Despite this it was considered useful to elaborate the test and aim at producing conditions under which the colour could be measured by a tintometer. The first experiments were made on ground ergot extracted with ether in the presence of ammonia. After removal of ether, the residues were taken up in acetic acid (33 per cent.), and it was noticed that the development of colour was much affected by temperature rise during mixing with sulphuric acid. Finally it was decided to adopt as a standard method a solution of ethereal extractive in glacial acetic acid, and to add to this an equal volume of 50 per cent. sulphuric acid (v/v), as these are readily mixable without change in temperature. The procedure of testing is :—

Ext. Ergotæ Liq.—Mix 2 c.c. of the sample with 1 c.c. of 10 per cent. ammonia and shake with 15, 10 and 5 c.c. of ether. The ether is poured off through a filter, and the extract is evaporated to dryness. The residue is taken up in 15 c.c. of glacial acetic acid. The solution is filtered, and 4 c.c. of the filtrate are mixed with 4 c.c. of 50 per cent. v/v sulphuric acid in a test tube. The full colour develops in about twelve hours and is stable for a further day.

Ergot.—2 gm. of the powdered drug is shaken for two hours with 1 c.c. of 10 per cent. ammonia, 2 c.c. of water, and 40 c.c. of ether. The ether extract is treated as above.

In Table I are tabulated tests on a number of liquid extracts of ergot which have been standardised against ergotoxine. All colours were matched in a Lovibond tintometer, using the 1-cm. cell, the metal walls of the cell being protected with a layer of paraffin wax. The

British Pharmaceutical Conference, 1927.

results are expressed as apparent percentages of alkaloid :—

TABLE I

No.	Physiological assay	Colour in Lovibond Units		Origin
		Blue	Red	
1	0.2	5.2	4.1	Spanish ergot
2	0.13	5.3	4.6	"
3	0.11	3.0	2.2	"
4	0.1	5.3	4.0	"
5	0.1	3.9	3.1	"
6	0.1	2.7	2.5	"
7	0.08	5.8	4.3	" (?)
8	0.075	3.5	2.4	"
9	0.07	3.3	2.5	2 years old. Spanish ergot
10	0.067	5.4	5.4	Spanish ergot
11	0.065	2.2	2.1	"
12	0.05	0.5	0.5	Russian ergot
13	0.05	1.8	1.4	Tinct. ergotæ ammon., B.P. Spanish ergot
14	0.04	—	Trace	Russian ergot
15	0.04	3.0	2.0	Spanish ergot
16	0.04	—	No colour	Russian ergot
17	0.018	—	Trace	"
18	0.01	—	No colour	"
19	0.007	—	Trace	"
20	0.005	5.2	3.9	"

All the preparations assaying above 0.065 per cent. of alkaloid by biological test give a well-marked colour. The test is not always reliable in indicating inactive specimens, as shown by Nos. 15 and 20. A negative result with the colour test has in all experiments indicated an inactive preparation. The graphs in Figs. 1 and 2 are from tests on a commercial sample of ergotoxine phosphate and two samples of ergotinine citrate. A known weight of ergotoxine phosphate or of ergotinine citrate was suspended in 20 c.c. of water, a few drops of dilute ammonia were added, and the alkaloid was extracted with three quantities of 20 c.c. of ether. The ether was evaporated and the residue was weighed and taken up in glacial acetic acid, so that 1 c.c. contained 1 mgm. of alkaloid. Varying quantities were taken and each made up to 4 c.c. with glacial acetic acid. It will be seen that ergotoxine and ergotinine give similar amounts of colour, one colour unit corresponding approximately with 0.1 mgm. of alkaloid. The results may be reproduced with very little variation, and may be said to be approximately proportional to the amount of either the blue or red colour produced. Colour is just visible with 0.05 mgm. of alkaloid, and amounts greater than 0.7 mgm. give colours too intense to be read in a 1-cm. cell. A specimen of ergotamine gave a similar colour, but was not available in sufficient quantity for more detailed investigation. The solution in glacial acetic acid used for the test must be fresh. On standing, the colour becomes redder and diminishes in quantity. Boiling with glacial acetic acid for a short time has the same effect. The addition of hydrogen peroxide prevents the formation of colour. The presence of a trace of ferric chloride in the sulphuric acid reduces the colour, and hence is not necessary. Dr. J. H. Burn is thanked for samples and use of biological results. The work was carried out in the laboratories of Allen & Hanburys, Ltd.

DISCUSSION

Dr. JOWETT said it was not difficult to work out a method of estimating the total alkaloids. The advantage of testing for total alkaloids was that if the ergot had none it could be turned down at once, but he could confirm the statement that no method had been obtained of estimating the amount of ergotoxine and of ergotinine, so that a preparation must be tested physiologically. He asked what became of all the ergot which contains no ergotoxine, and whether the time was not approaching when the use of the specific alkaloid should replace the extract, as even if the latter is physiologically standardised it is difficult to be sure of its activity.

Mr. WOKES urged that the blue colour should be characterised more definitely, namely, by its wave-length. The blue colour, moreover, may be due to something else, such as an impurity.

Mr. CRIPPS asked if acid preparations keep better

than alkaline ones. Evidently Spanish ergot is superior to Russian.

Mr. T. EDWARD LESCHER pointed out that in only one case was age mentioned, and there was no reference in the paper to the Portuguese and Polish ergot. A considerable amount comes from the latter and a lot from the former country. He asked what changes might occur as the result of keeping the extractive matter, and characterised the paper as an extremely useful one.

Mr. EVERS, replying, said he did not know what became of the useless ergot, but this is often made into preparations before its lack of value is discovered. He had not examined the colour spectroscopically. The process in all cases except one was acid. Undoubtedly some deterioration in activity occurs in keeping. Spanish ergot is superior to Russian. Regarding that from Portugal, he found it on a par with the Spanish. He did not know the age of the samples, nor did he know how far changes in extractive matter affected these preparations.

The chairman conveyed the thanks of the meeting.

The next paper was :—

The Volumetric Assay of Iodides

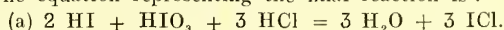
By A. J. JONES, PH.C., A.I.C.

[ABSTRACT]

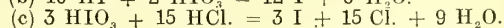
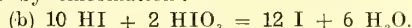
THE B.P. assay of iodides by titration with silver nitrate solution, using potassium chromate as indicator, is open to several objections. The end-point is not sharp, and though the amounts work out as if designed to admit 1 per cent. of potassium chloride, 96.7 per cent. of potassium iodide with 3.3 per cent. of potassium bromide would be within the official titration limits. The official standard is perfectly definite, but the assay is not sufficiently precise to establish that standard.

The author advocates Andrews' method of titration by means of iodate solution (L. W. Andrews, "Journal of the American Chemical Society," 25, 756). This method is specific for the iodine ion (to the exclusion of the other halogens and carbonates), the end-point being sharp to one drop of decinormal solution. The method consists in adding potassium iodate solution to the iodide dissolved in comparatively strong hydrochloric acid solution. The iodine liberated colours chloroform pink on shaking with the mixture, and the end-point occurs on discharge of the pink colour from chloroform.

The equation representing the final reaction is :—



This really occurs in two stages, the first being that of liberation of iodine, and the second, discharge of colour by chlorination :—



The course of the reaction is shown by adding $\frac{2}{3}$ of the full amount of iodate and extracting the liberated iodine with chloroform. The aqueous portion will be found free from any iodine combination, and the chloroform returns the 12 I (of equation b) on titration with standard thiosulphate. If the $\frac{2}{3}$ quantity of iodate be exceeded, the iodine chloride corresponding to the excess of iodate can be found by extracting with ether the separated acid layer of the chloroformic extraction.

The concentration of hydrochloric acid present must not fall below 40 per cent. by volume. The following routine is suggested :—

0.5 gram of potassium iodide (or the equivalent of another salt) is dissolved in 10 c.c. of water in a four-ounce white-stoppered bottle and 40 c.c. of hydrochloric acid (e.g. 1.160) added. Decinormal potassium iodate solution (10.701 grm. KIO_3 in 1,000 c.c.) is then run in. The iodine liberated increases in quantity as the titration proceeds and then gradually disappears. While a brownish tint still persists, 5 c.c. of chloroform is added and the mixture well shaken. The titration is then continued until, after shaking, the pink colour in the chloroform is completely discharged (the supernatant liquid being a brilliant yellow).

Table I includes the results of titration in the presence of bromide, and shows that an accurate determination

British Pharmaceutical Conference, 1927.

of iodide effected when the mixture contains equal molecular quantities of bromide and iodide:—

TABLE I

Iodide solution taken	c.c. N/10 solution	Potassium added	Iodate required c.c. N/10 solution
10 c.c. ..	—	—	(a) 29.8; (b) 29.8; (c) 29.85
10 c.c. ..	3 c.c. = 0.036 gm.	—	(a) 29.8
10 c.c. ..	10 c.c. = 0.119 "	—	(a) 29.85; (b) 29.8
10 c.c. ..	30 c.c. = 0.357 "	—	(a) 29.9; (b) 29.8; (c) 29.85

Trade Samples of Potassium Iodide.—Table II compares results indicated by the B.P. assay with complete analysis of commercial samples of potassium iodide:—

TABLE II

Apparent KI (B.P. Titre)	103.68	102.06	99.60	98.97
KI (Iodate method) — ..	96.28	97.67	99.17	98.83
KBr (Deniges test) — ..	0.95	0.60	0.0	0.01
KCl (by difference) — ..	2.73	0.79	0.19	0.06
Moisture, etc. ..	0.04	0.94	0.64	1.10
	100.00	100.00	100.00	100.00

Mercuric Iodide.—Iodate assay can be applied to red iodide of mercury, taking 0.6 to 0.7 gm. of the substance ground to a very fine powder. Precaution must be taken that all the mercury iodide is in solution before the end point is reached or chloroform is added. Mr. C. W. Cornwell is thanked for working out the course of the reaction. The communication is made from the laboratories of Evans Sons Lescher & Webb, Ltd., Liverpool.

There being no discussion, the chairman expressed the thanks of the audience to the author.

The next paper was:—

High-Density Syrup for Pharmaceutical Use

By W. A. WHATMOUGH, B.Sc., F.I.C.

[ABSTRACT]

ATTENTION is called to the advantages of mixtures of saccharose with certain hexose sugars for the production of high-density syrups suitable for pharmaceutical use, which appear to have escaped the notice of compilers of formulas for galenical preparations. Martindale's "Extra Pharmacopœia" (17th Edition, 1920) appears to be the first one to make a reference to "invert sugar" in syrup form, but a note adds that analysis "of a proprietary invert sugar of this kind" shows "38 per cent. of unaltered sugar." Actually, this presence of suerose is intentional, in order to prevent crystallisation of the highly concentrated sugar solution, which contains about 80 per cent. of solids. The utility of high-density syrups arises from their resistance to fermentation by certain wild yeasts (*Torula* Spp.), this property being far more important than the extra body and sweetness of the more highly concentrated sugar solution. The application of the term "invert sugar" to high-density syrup intended for pharmaceutical purposes is inaccurate, and in some ways unfortunate. The intrinsic feature of a high-density pharmaceutical syrup is the chemical purity and accurate adjustment of its components, both as to the proportions of sugars and of water, and it will be necessary to coin some euphonious name for general application to such a syrup.

High-density syrup for pharmaceutical purposes should be composed solely of sucrose, invert sugar, and water, containing about 80 per cent. of solids. The best balance of component sugars consists of approximately equal parts of sucrose and invert sugar, with 20 per cent. water, the composition suggested being:

% by weight		% by weight	
Saccharose	40	Lævulose	20
Dextrose	20	Water	20

The components of invert sugar differ in sweetness, dextrose (or glucose) being less sweet and lævulose (or

fructose) being more sweet than saccharose (refined cane sugar or beet sugar), but the combination is about as sweet as cane sugar. The peculiar properties of invert sugar syrup in regard to freedom from crystallisation is mainly due to the extremely hygroscopic properties of lævulose, which prevents loss of water and crystal formation at the exposed surface of the syrup.

Pure invert sugar of commerce consists of a white creamy paste, this appearance being due to the suspension of minute crystals of dextrose in a syrup containing an excess of lævulose over dextrose. It contains the equivalent of 82 per cent. of invert sugar, and melts to a clear syrup below 60° C. It is recommended for the extemporaneous preparation of high-density syrup, the proportions of ingredients being:—

		Parts by weight	
Invert sugar (paste)	5
Water	1
Refined sugar	4

Melt together the invert sugar and water on a water bath. Add the refined sugar to the mixture and dissolve at a temperature not exceeding 100° C., with continual stirring to avoid discolouration. (Care must be taken that no crystals remain in the finished product, which should be finally adjusted either to weight, or to definite gravity when cold.)

High-density syrup has a specific gravity of 1.40, and a sugar content of 80 per cent., compared with 66 per cent. of sugar in syrupus, B.P. (sp. gr. 1.33). Though decidedly more viscous than simple syrup, it retains its pourability at low temperatures (e.g., 0° C.), and is particularly adapted for the extemporaneous preparation of syrups, the higher sugar concentration avoiding undue thinning.

Comparisons of syrup of orange made with ordinary syrup and high-density syrup are given to illustrate the innate advantages of the latter:—

<i>Syrupus Aurantii</i> (B.P.)		<i>Syrupus Aurantii</i> (High density)	
Appearance	Cloudy	Clear	
Flavour	Good	Decidedly	more
		delicate	and
		lasting	
Consistency	Thin	Better Body	
Crystallisation	Container neck coated with solid sugar	Syrup does not dry on neck	

Cane sugar syrups in demand as domestic medicines invariably give trouble on keeping, becoming unsightly and being liable to explosive decomposition in tightly corked bottles. High-density syrup overcomes these difficulties, and permits production of products of true pharmaceutical elegance. It is claimed that the replacement of syrupus, B.P., by high-density syrup would be advantageous to pharmacist, physician, and patient, owing to the better flavour and keeping properties greatly outweighing the relatively slight increase in cost of the heavier syrup.

In syrups made with refined sugar the formula would require replacement of a portion of the cane sugar by invert sugar (paste), with due increase in total sugar content. High-density syrups afford an opportunity for the true exercise of pharmaceutical art in the manufacture of medicinal colouring and flavouring syrups, such as syr. rheados and syr. ribis fructus, B.P.C., the colour and the fruitiness being improved by concentration at low temperature. High-density syrups possess no advantages in hiding the taste of iron salts or bitter tonics in solution, and experiment is needed on the effect of storage on acid syrups of high density. A fertile field for high-density syrups is in the preservation of concentrated preparations of the anti-scorbutic vitamin C, the keeping properties of the concentrated orange juice of commerce being by no means satisfactory. Information on high-density syrup in sugar literature is a complete blank, and the notes and suggestions are intended as a contribution to the best traditions of pharmaceutical elegance.

Specimens exhibited include the following pharmaceutical preparations:—

British Pharmaceutical Conference, 1927.

High density syrup (commercial)
 High density syrup (extemporaneous)
 Pure invert sugar (paste, 82 per cent. solids)
 Pure invert sugar (super-saturated syrup, 82 per cent. solids)
 Syr. anisi, high density
 Syr. anethi, high density
 Syr. aurant., B.P. (cloudy)
 Syr. aurant., high density (clear)
 Syr. limonis, B.P.
 Syr. limonis, high density

Vitamin Syrups

Orange juice, high-density syrup (concentrated 2 in 1)
 Decitrated lemon juice, high-density syrup (conc. 4 in 1)

Syr. papaveris, high density
 Syr. rhei, B.P.
 Syr. rhoeades (ex. liq. pre. syr.)
 Syr. tolutani, high density
 Syr. violae (from B.P. syrup fermenting)
 Syr. violae, high density (unchanged in colour and flavour)
 Syr. zingib., B.P.
 Syr. zingib., high density (cloudy)
 Syr. zingib., high density (clear, ex-soluble essence)

Flavouring Syrups

Raspberry syrup, high density (from cold process extract, natural colour and flavour)
 Raspberry cough syrup with squill, ipccac., and tolu (taste unaltered).

DISCUSSION

The CHAIRMAN said his acquaintance with these syrups was of a limited nature, but he would be glad to hear of the experience of other members.

A member said, in reference to petal syrups, he had not always been able to get reactions in syrups such as are given by the petals.

Mr. FRANKLIN congratulated the author, and asked to what was due the increased keeping properties of the syrups. He protested against interference with the specific gravity of B.P. syrups.

Mr. TODD regarded the case of simple syrup overstated, as official syrups do not ferment as a rule, and the relative cost was a factor against the high-density syrup. As a substitute for glycerin he thought the new syrup might be of use; the density of the syrup of violet appeared to differ from that of the official syrup.

Mr. T. MALBY CLAGUE pointed out that the deposit in iron syrups had been attributed to the sugar, and asked if the author had any experience with such syrups.

Mr. BRINDLE asked why high-density syrups remained clear.

Mr. WHATMOUGH, in reply, said it is the high gravity which makes the syrup unfermentable. An 80 per cent. solution of sugar does not ferment, but if it is of s.g. 1.33 it is a better bacterial nutrient and will ferment. As regards cost, this largely depends on whether the syrup is bought or made. Approximately, the cost of B.P. syrup is 27s. per cwt., and that from invert sugar 40s. per cwt., but he did not think the difference would make it impossible to use a syrup which keeps. He has found that in the drug trade trying to save cost has often resulted in the article being a great deal more costly. As a substitute for glycerin the syrup was quite satisfactory, the taste being bland, compared with that of glycerin, which is burning. In food sugar carries a taste of its own. This syrup, which is made from cane sugar, is one of the purest of products, and other flavours can be superimposed on the flavour with excellent results. In the case of iron syrups it was not as a rule an advantage to substitute the new syrup, the iron killing the taste; and when glucose was present sulphuretted hydrogen might be generated from the sulphur dioxide. The levulose in the high-density syrup prevents it from drying. In conclusion, Mr. Whatmough referred to some trouble he had experienced with Easton's syrup; the trouble was eventually traced to sugar containing 1 in 10,000 of ultramarine.

The two following papers were taken as read:—

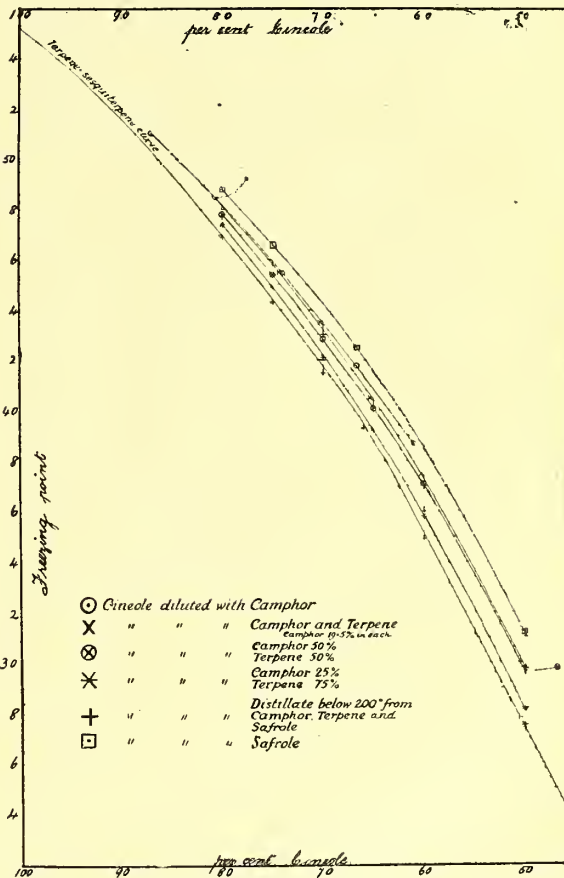
The Estimation of Cineole

By T. TUSTING COCKING, F.I.C.

[ABSTRACT.]

THE addition of ortho-cresol to a cineole-containing oil (resulting in the formation of a molecular compound of ortho-cresol and cineole) is the basis of "cresineol"

method originated by the author for the determination of cineole in eucalyptus and cajuput oils. This is acknowledged to be, at the present time, the only method by which reasonably concordant results can be obtained. Briefly, the method consists in determining the freezing point of a mixture of 3 grams of the oil and 2.1 grams of ortho-cresol: the percentage of cineole being obtained from a temperature-percentage graph of freezing points of known mixtures of cineole with ortho-cresol. A modified process applied to lavender, spike and rosemary oils, containing less than 50 per cent. of cineole, consists in artificial enrichment prior to testing. In practice, it is more convenient to add an equal weight of pure cresineol to the test mixture. Thus 3 grams of the oil and 2.1 grams of the ortho-cresol are mixed and allowed to cool, and if no crystals separate below 27°, an equal weight



(5.1 grams) of recrystallised cresineol is added and the freezing point of the liquefied mixture determined in the usual manner. Oils containing from 0 to 50 per cent. of cineole, when enriched in this manner, will contain from 50 to 75 per cent. of cineole, and this range under the modified test covers oils containing from 0 to 75 per cent. of cineole.

The present note deals with the determination of cineole in camphor oil. Of the three varieties of camphor oil the crude oil remaining after removal of the crystallised camphor does not enter into commerce, being fractionated in Japan into "light camphor oil," "camphor," and "heavy (or black) camphor oil." Light camphor oil usually distills wholly below 200° C., and these low boiling fractions are composed chiefly of terpenes and cineole, with a small quantity of camphor only. Heavy (black) camphor oil consists chiefly of saffrole, phenols, sesquiterpenes and other high boiling constituents, but it is free from cineole.

The author finds that light camphor oil (boiling below 200°) may be assayed by the modified cresineol method

British Pharmaceutical Conference, 1927.

with the same degree of accuracy as is attainable with eucalyptus oil. The error was negligible in a series of determinations with diluent corresponding to the non-cineol portion of light camphor oil. The effect of camphor is to raise the freezing point, the maximum increase being for a saturated solution of camphor in cineole. The error is equivalent to 3.5 per cent. of cineole (using the terpene-sesquiterpene graph), but it diminishes to less than 1 per cent. when the diluent contains 25 per cent. of camphor.

The following table shows the cineole content of a number of samples of light camphor oil examined by this method during the last five years, together with other physical constants. Whereas formerly the cineole content was about 50 per cent., many recent shipments have been very much lower. This may be due to different methods of refinement, the higher percentage oils being now almost unobtainable.

ANALYSES OF LIGHT OIL OF CAMPHOR

Date and No. of sample	Sp. gr.	Optical rotation	Refractive index at 25°	Boiling range			Residue in flask	Percent. cineole
				170°	180°	190°		
1922 1	0.900	+11.4°	1.4650	4	90	—	6	53
" 2	0.896	+17.4°	1.4655	8	80	10	2	40
" 3	0.897	+12.6°	1.4650	2	78	15	5	44
" 4	0.895	+10.4°	1.4635	3	87	6	4	49
" 5	0.889	+15.0°	1.4625	8	72	18	2	42
" 6	0.885	+14.6°	1.4635	6	82	10	2	40
1923 1	0.893	+11.0°	1.4645	4	90	3	3	50
" 2	0.897	+10.0°	1.4625	0	90	5	5	54
" 3	0.899	+9.0°	1.4630	5	85	6	4	56
" 4	0.900	+9.0°	1.4625	5	86	5	4	56
1924 1	0.898	+9.0°	1.4620	2	86	10	2	52
" 2	0.898	+8.0°	1.4620	0	90	6	4	52
" 3	0.879	+24.4°	1.4655	26	65	6	3	24
" 4	0.900	+9.0°	1.4620	0	92	5	3	55
" 5	0.899	+9.0°	1.4625	—	—	—	—	55
" 6	0.900	+10.0°	1.4610	0	90	5	5	60
1925 1	0.900	+9.0°	1.4610	3	92	—	5	54
" 2	0.898	+9.4°	1.4610	2	90	4	4	54
" 3	0.880	+23.0°	1.4655	30	55	13	2	32
1926 1	0.880	+21.0°	1.4660	20	78	—	2	36
" 2	0.872	+19.2°	1.4635	3	85	8	4	20
" 3	0.898	+9.2°	1.4635	5	89	2	4	54
" 4	0.898	+9.9°	1.4625	5	88	2	5	54
" 5	0.898	+9.9°	1.4625	6	89	—	5	56
" 6	0.878	+22.4°	1.4665	0	92	5	3	29
" 7	0.878	+22.2°	1.4665	0	91	6	3	29
" 8	0.880	+22.3°	1.4650	7	87	3	3	31

A number of samples were examined for Cineole content only with the following percentage results:—

1924 ..	24, 52, 52, 54, 24, 54, 25
1925 ..	54, 32, 32, 31
1926 ..	21, 50, 50, 54, 28, 28, 30, 29, 29, 26, 27, 26, 29, 28, 28, 26, 30, 31

Figure 1 summarises the whole series of tests in graphic form. The following notes apply:—

(I) The necessary corrections for mixtures of cineole and camphor may be read off from Curve A.

(II) Curve B should be used for mixtures of terpene and cineole saturated with camphor.

(III) No correction is necessary for light oil of camphor of commerce boiling below 200°, or mixtures of similar composition.

(IV) Crude camphor oil containing high boiling constituents should be distilled through a fractionating column (until camphor solidifies in the condenser) and the cineole determined in the distillate. The results will be slightly on the low side.

This research was carried out in the laboratories of The British Drug Houses, Ltd., and many of the freezing point determinations were carried out by Mr. J. H. Harris.

The Plastic Behaviour of Tragaacanth Mucilage and its Pharmaceutical Significance

By G. MIDDLETON, B.Sc., A.I.C.

[ABSTRACT]

RESULTS of determinations of the viscosity of tragacanth mucilage exhibit entirely different figures according to the type and dimensions of the apparatus used. It was thought probable that the mucilage may be a substance possessing a variable viscosity with a behaviour intermediate between that of a viscous liquid with a rate of

flow proportional to the fluidity of the liquid and that of a plastic substance which to start the flow requires a certain pressure known as the "yield value." Starch mucilage, ammonium oleate solutions, and nitrocellulose are examples of substances with variable viscosity, the flow-pressure curve being continuous, but showing an increasing slope as the applied force is intensified.

Determination of Apparent Viscosity.—The apparatus used consisted of an inverted, tapless, separating funnel in the neck of which is fixed a capillary tube 8.2 cm. in length with a bore of 0.0975 cm. This plastometer was filled with mucilage by suction through the capillary, the presence of air bubbles being avoided as far as possible. The mucilage was prepared (without the addition of alcohol or glycerin) by soaking the tragacanth gum in water (containing a little chloroform) for twenty-

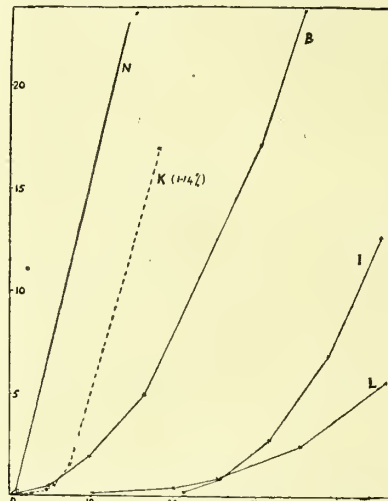


FIG. 1. (Below, pressure of mercury in cm.; at side, rate of flow in cc. per minute.)

four hours, and sucking the mucilage through fine holes in the bottom of a Gooch crucible. This last operation was repeated three times to produce a very uniform mucilage, which was then allowed to stand for a further twenty-four hours before measuring the apparent viscosity. Air pressure was applied to the surface of the mucilage in the plastometer from a Winchester bottle fitted with a mercury gauge, the liquid flowing out being received into a small beaker. When the flow becomes steady this receiver is removed (scraping its edge against the lower end of the capillary) and another weighed beaker is immediately put in its place to receive the flow for a definite interval of time (with removal by scraping as previously). The mean pressure on the mercury gauge (which should not drop more than 2 mm. during the experiment) is noted and allowance made for the pressure due to the height of the surface of mucilage above the lower end of the capillary tube. Since comparative rather than absolute results were required, the temperature was not carefully controlled, but the liquid was about 20 deg. C. throughout the whole of the experiments.

Duplicate experiments always gave consistent results, except at high rates of flow, when the onset of turbulence and temporary loss of rigidity after shear were disturbing factors. In order to reduce the effect of variable rigidity the mucilage was always left undisturbed for about 12 hours after filling, and the lowest pressure was determined first, increasing step by step to the maximum.

Typical results obtained are shown graphically in Fig. 1, the type of curve being the same in all cases. The letters correspond to tragacanth samples included in Table I, the curves relating to a 2½ per cent. mucilage (except where otherwise stated). These results show that tragacanth mucilage behaves as a substance of

British Pharmaceutical Conference, 1927.

variable viscosity, its physical structure breaking down during flow, and the original structure being regained on cessation of movement. The slope of the line joining any point on the curve to the origin gives the "apparent fluidity" at that point. This is the reciprocal of the apparent or effective viscosity. Being variable it is not a true viscosity, but corresponds to the viscosity of a liquid that would have the same rate of flow under the same conditions.

The same mucilages were also tested by the shot method, this test consisting in a determination of the time required for a lead shot of weight 0.05427 gm. to fall through 5 cm. of the mucilage. Viscosities calculated for comparison with those obtained by the flow method are given in Table I:—

TABLE I

Sample	Description	Pressure (cm. of mercury)	Vol. of flow	Apparent Viscosity (C.G.S. units)	Shot test seconds	Viscosity from shot test (C.G.S. units)
B ..	Turkish powder	1.0	0.05	4.3	190	1,000
		16.5	4.90	0.72	—	—
		42.3	33.72	0.27	—	—
I ..	Turkish flake ..	1.1	0.0	—	930	5,000
		21.2	0.198	23.0	—	—
		56.8	26.48	0.46	—	—
K ..	Turkish flake..	41.5	0.854	10.4	7,200	30,000
		60.3	7.04	1.85	—	—
		0.8	0.192	0.96	0.2	1
N ..	Hog, lump ..	21.9	35.72	0.15	—	—
		1.9	0.0	—	—	—
		10.1	0.056	38.7	—	—
L ..	Indian lump .. (Sterculia)	25.5	0.810	6.75	—	—
		69.3	20.06	6.74	—	—

One determination was carried out on sample K with a weaker mucilage of 1.14 per cent., giving a short test of 4 seconds (= viscosity of 22 c.g.s. units).

The enormous decrease in apparent viscosity with increase in pressure is apparent. The values calculated for the viscosity from the shot test can only be considered rough approximations, but they show that the conditions in this test correspond to the first part of the curve where the slope is very small and the viscosity very high.

Comparison and Evaluation of Tragacanth.—The determination of apparent fluidity under different pressures does not lend itself to simple comparison. It is difficult to get accurate results at the lowest part of the curve, which is the most important in practice. The shot test is, therefore, more suitable for routine testing, but the size of shot used should be standardised. A small one was chosen in the experiments, since it approaches more nearly the size of a particle in suspension. Evers & McLachlan (Y.-B.P., 1924, 637) used a steel ball 5.32 inch diameter, but their figures are of the same order as those obtained by the present author using the smaller and denser lead shot. The use of powders for the comparison of the suspending power of tragacanth suffers from the difficulty of standardising the powder, is slower, and the results bear less direct relation to the strength of the mucilage.

With tragacanth the ease of pouring depends mainly on the viscosity corresponding to a pressure of from 2 cm. upwards (where it has a magnitude of a few units only). As a suspending agent a plastic mucilage is greatly superior to a liquid of equal but constant viscosity, as this would be much too thick to pour. A plastic mucilage is equally desirable for emulsions as for suspensions, since the conditions controlling the movement of emulsified oil globules are those governing the fall of suspended particles. In considering the stability of emulsions two factors must be clearly differentiated—"creaming," and coalescence of the particles or "breaking." The former relates to the rise of globules which still retain their individuality, and is controlled by the viscosity (or plasticity) of the medium. Coalescence is prevented by the addition of an emulsifying agent, which lowers the surface tension between oil and water and forms a (probably plastic) adsorption film round the

globules. Mucilages and emulsifying agents may be classified in three groups:—

- A. Gelatinous:—Gelatin, Irish moss.
- B. Plastic:—Tragacanth, pectin, starch.
- C. Emulsifiers:—Acacia, soap, saponin, casein, albumen.

The substances of class A set to firm jellies which have a high rigidity, but this is destroyed by stirring and not readily regained. These jellies also melt on heating. On account of this variation in rigidity they are not used as much as substances of the second class. Plastic mucilages do not show such a marked change with temperature, and after stirring soon return to their original condition. Class C includes the true emulsifiers acting by forming a film round the oil drops. Classes A and B are poor emulsifiers, the coarse-grained drops being kept apart by the rigidity of the medium. A stable emulsion should contain both an emulsifying agent and a substance giving rigidity to the liquid. This is well illustrated by the combined use of acacia and tragacanth, which gives results that cannot be obtained by either gum alone. The tragacanth, by increasing the viscosity of the medium, also facilitates the subdivision of the oil, keeping the oil globules separate for a sufficient time for a film of emulsifier to form round them by diffusion. Where the suspended phase is solid the use of acacia is in general unnecessary, although this depends to some extent on the nature of the solid phase.

An interesting field awaits exploration in the changes to be observed in the plasticity curve of tragacanth mucilage with change in concentration and temperature, with addition of acacia or alkali, etc.

The determinations were carried out in the Pharmaceutical Research Laboratory of The British Drug Houses, Ltd.

An adjournment for luncheon was then made.

Science Section—Tuesday Afternoon

An average number of members assembled after luncheon in the Science Section. The first paper taken was:—

A Short Note on Catechu Pallidum

By C. J. JORDAN

[ABSTRACT]

At the British Pharmaceutical Conference of 1926 doubt was raised as to the genuineness of pale catechu of present-day commerce. The results in the table record results obtained with a series of commercial samples, with a few remarks on the various tests.

Moisture is not mentioned in the British Pharmacopœia. Percentages varying from 7 to 14.6 are recorded.

Solubility in Water.—Very few of the samples are "almost entirely soluble in boiling water."

Solubility in Alcohol.—Only two samples answered the B.P. requirement that "not less than 80 per cent. is soluble in alcohol (90 per cent.)."

Mineral Matter.—Only three samples were below the B.P. limit of ash (5 per cent.).

Petroleum Spirit Test.—All samples gave the green fluorescence in this characteristic test.

Starch was present in all the samples with two exceptions. It is reported rice meal is added to thicken the extract during the manufacture of catechu in Borneo. This fact may account for the presence of starch, and suggests the source of present-day cube gambier.

Chlorophyll.—The method of detection of R. P. Biggs was 1 gram of the powdered sample, which, well shaken with 5 c.c. of warm chloroform, the chloroformic extract being filtered off after 10-15 mins. The presence of chlorophyll was shown by the green colour of the filtrate. No. 6 sample, over fifty years old, gave a slight but nevertheless marked reaction. It is interesting to note that *Catechu nigrum*, B.P., and mangrove catechu on similar treatment yielded colourless filtrates.

Modified Goldbeaters Skin Test ("Analyst," January,

British Pharmaceutical Conference, 1927.

1924).—This was applied to all the samples, but although useful for the detection of tannin it seems to be of little quantitative value in the case of *Catechu pallidum*. A difference could be noted in the colour of the stained skins, but the depth of tint was found to bear no relation to the solubility of the sample.

between 10 per cent. solutions in plain water and in chloroform water. On testing with litmus paper, the samples of Class A were distinctly less acid than those of Class B. From the B.P. quantities the amount of ammonia present in the salt (calculated as NH_3) should be about 8.0 per cent., presuming that none is lost

No. of Sample	Source	Description	Percentage of moisture	Percentage soluble in boiling water	Percentage soluble in 90% alcohol	Percentage of mineral matter
1	Importers (a)	Small, regular brown cubes. Internally, light brown in colour, soft, but coarse. Starch present	7.10	45.2	43.3	33.10
2	Importers (b)	Reddish-brown cubes. Granular surface. Internally, gritty and hard. Starch present	8.10	56.8	57.8	13.42
3	Brokers	Small, dark brown cubes. Internally, light brown colour, very hard. Starch present	9.85	74.2	66.6	10.70
4	Wholesale Druggists (Sample stated B.P.) ..	Brown regular cubes. Internally, light grey colour, patchy and hard. Starch present	8.95	61.3	58.7	11.01
5	Wholesale Druggists (Sample stated B.P.) ..	Large cubes, somewhat baked appearance, very brittle. Internally, cinnamon brown and soft. Starch absent	10.66	83.2	80.2	4.19 (White ash)
6	Public Institution (Sample over 50 years old)	Irregular, large cubes, baked appearance. Internally, cinnamon brown colour, porous and very soft. Starch absent	14.64	94.8	88.5	3.18 (White ash)
7	Company Retail Chemists ..	Large cubes. Internally, cinnamon brown, soft. Starch present	12.36	79.2	76.4	5.26
8	Wholesale Druggists ..	Brown cubes. Internally, somewhat hard, light brown colour. Starch present	7.00	42.1	39.0	31.60
9	Retail Chemists (Sample stated as B.P.) ..	Cubes rather hard, dark brown colour. Internally, patchy brown. Starch present	10.18	68.2	65.6	6.16
POWDERS						
10	Wholesale Druggists	Pale brown powder. Starch present	10.70	86.5	76.9	3.12
11	Retail Chemists	Pale brown powder. Starch present	12.37	66.6	59.4	12.37
12	Company Retail Chemists ..	Pale brown powder. Starch present	9.90	63.9	52.2	8.77

Samples Nos. 5, 6, 7 and 10 gave figures approximating to the B.P. requirements, and are probably genuine. The other samples would appear to be *Catechu pallidum* adulterated intentionally or through carelessness in manufacture, and it would seem, therefore, that the *Catechu pallidum* of commerce is rarely of B.P. quality. (Laboratory of Evans, Gadd & Co., Ltd., Exeter.)

DISCUSSION

Mr. BRINDLE confirmed the author's observations. Since the last meeting of the Conference he himself had examined more than half the samples coming into Liverpool, and had invariably found starch.

Mr. WALMSLEY expressed the view, founded on a Manchester experience, that B.P. catechu was almost unobtainable. The appearance of most samples had altered since the war, and it was evident that heat must be used.

Mr. BREWIS confirmed the findings of the previous speakers. The samples he had examined mostly failed in alcoholic solubility, and the ash was generally low. Some were bubbly and sintered.

A member suggested that a small quantity of starch was not altogether a bad thing.

The chairman briefly thanked the author.

The next paper was:—

Note on Iron and Ammonium Citrate, B.P.

By FREDERICK J. TODD, Ph.C.

[ABSTRACT]

COMMERCIAL samples of iron and ammonium citrate behave differently on solution, and to such an extent that dispensing chemists have queried whether the salt supplied to them was actually in accordance with Pharmacopœial standards. All the samples tested were soluble in the proportion stated in the British Pharmacopœia (i.e., one part of salt in 0.5 part of water), but in 10 per cent. solutions the samples were divisible into two classes, viz.:—

(a) Soluble in water and solution remaining bright on standing three or four days.

(b) Soluble in water, but a heavy precipitate being deposited within three to four days.

The British Pharmaceutical Codex states that solutions of iron and ammonium citrate do not keep well without chloroform water, but no difference occurred in behaviour

during evaporation to a syrup. The directions to maintain "a very slight excess of ammonia" are evidence of this intention. The ammonia was estimated in a number of samples as follows: About 4 grams of the salt was dissolved in saturated solution of common salt, and, after adding 5 c.c. of strong solution of sodium hydroxide (50 per cent. w/v), the liberated ammonia was distilled over into 30 c.c. of normal sulphuric acid, the excess of acid being titrated against normal solution of sodium hydroxide. In the results given below the letter indicates the class of sample as described above:—

	Ammonia (as NH_3)	Class
(1)	5.51 per cent.	B
(2)	6.39 per cent.	A
(3)	6.97 per cent.	A

Sample (3) with the highest ammonia content gave a nearly neutral solution. It is added that it would appear to be desirable to amend the B.P. monograph so that not less than 6.9 per cent. of ammonia is required to be present in iron and ammonium citrate. Also that the aqueous solution be neutral, or very faintly acid or alkaline to litmus. The behaviour with magnesium sulphate is stated to be a misleading criterion. Acid Class B samples (which deposit with plain water) give clear aqueous solutions containing $7\frac{1}{2}$ grains of iron and ammonium citrate and 15 grains of magnesium sulphate in each fluid ounce, whereas deposition occurs with Class A iron and ammonium citrate.

The work for this note was carried out in the laboratories of C. R. Harker, Stagg & Morgan, Ltd. Thanks are accorded to Mr. W. B. Bruckman for carrying out the determinations.

DISCUSSION

The CHAIRMAN said that the difference indicated in the paper had been found by many. His idea was that doctors called for a preparation which would give a clear solution when prescribed with magnesium sulphate.

Mr. DEANE said chemists object to a deposit with ferri ammon. cit. and magnes. sulph. Ferri ammon. cit., when prepared by the B.P. method, gives a precipitate not due to the acidity or alkalinity, but due to a change in the iron which, when it has once occurred, cannot be altered. He had met samples which satisfied both tests.

Mr. SELF mentioned that he could confirm the variations of ammonia present in this preparation. Judging by tests, there are evidently two or more methods of

British Pharmaceutical Conference, 1927.

preparation. He suggested a minimum and a maximum limit for ammonia.

A vote of thanks was carried with acclamation.

The next paper (which, like its predecessor, was read by the author) was:—

The Official Preparations of Cinchona Bark

By FREDERICK J. TODD, Ph.C.

[ABSTRACT]

In this paper the question of cinchona extraction is considered from the galenical point of view rather than that of the manufacturer of quinine.

Cinchona Bark.—The B.P. assay of cinchona can be condemned as tedious and erratic, results being less than the true figure by anything up to 50 per cent. It appears unnecessary to determine quinine and cinchonine separately when the preparations are assayed for total alkaloid.

Liquid Extract of Cinchona.—The assay differs from that of the bark, but suffers from the same disadvantages. The process of extraction is unsatisfactory, the aqueous menstruum extracting the alkaloid slowly. Extraction is never complete, and may be alarmingly low, or even vary from the same bark. Thus yields of 80.7 and 64.5 per cent. of the total alkaloids were present in two batches of liquid extract made from the same parcel of cinchona on different dates. The preparation is not permanent and the uniformity of the commercial galenical leaves much to be desired. The products of wholesale drug houses were examined, the difference in appearance being remarkable, especially when dispensed in a simple mixture, such as liquid extract of cinchona, dilute nitric acid and water. The colour ranged from pale straw to reddish brown, from perfect clearness of the mixture to a heavy deposit. The samples were further examined as to the amount of total alkaloid and extractive, with the following results:—

—	Per cent. Total alkaloids	Per cent. Extractive (total solids)
Sample 1	4.19	33.1
" 2	5.45	43.45
" 3	4.94	52.9
" 4	4.93	47.45
" 5	2.92	42.85

The variation in the amount of extractive is not surprising, but the discrepancies in alkaloidal content call for investigation. Obviously it is not to a chemist's interest to be supplied with a preparation labelled B.P. when it is 40 per cent. deficient.

Tincture of Cinchona.—The preparation will never contain 1 per cent. of alkaloids, even if the official directions are followed. The tincture deposits on standing for three or four weeks, and the cost of the preparation is unnecessarily increased by the use of too high a strength of spirit. The maceration for seven days is wasteful of time and alcohol by evaporation. As the result of a series of experiments, it was found that a mixture of 90 per cent. alcohol and strong solution of ammonia completely extracted the alkaloids, and if the resulting percolate were evaporated an extract was left which contained no trace of ammonia, so that the presumption is that the various constituents had returned to the same condition in which they existed in the bark.

Assay of Cinchona.—The following process was therefore devised for the estimation of the total alkaloids of cinchona bark:—

5 gms. of cinchona bark in 60 powder, treated by a process of hot extraction with a mixture of 97.5 vols. of 90 per cent. alcohol and 2.5 vols. of strong solution of ammonia. The resulting liquid was evaporated together with 2.0 c.c. of glycerin to about 10 c.c. and transferred to a separator, 5 c.c.s each of water and alcohol, or the smallest possible quantities, being used to wash out the evaporating basin; 10 c.c. of normal alcoholic potash was added, the liberated alkaloids then extracted with ether, 5 c.c. of alcohol being added at each extraction. The mixed ethereal solution was washed with 20 c.c. of dilute solution of ammonia, then extracted with dilute hydrochloric acid. The alkaloids

liberated by ammonia were transferred to chloroform, which was washed with a little water, evaporated, and dried to constant weight.

In order to compare the value of the proposed method of assay with the present official one, two samples of bark were prepared in 60 powder, the amount of total alkaloids being determined by an independent analysis by Messrs. Harrison and Self. Comparisons of assay processes are recorded in the following table, the first figures relating to the percentage of total alkaloids in assay and those in parentheses to the percentage extracted as compared with Harrison and Self figures:—

Method Analysis	Sample 1	Sample 2
B.P. Assay	3.18 (48.1%)	4.45 (74.6%)
The residue from above dried, re-extracted by P.B. process ..	2.20 (33.2%)	0.37 (6.2%)
	5.38 (81.3%)	4.82 (80.8%)
U.S.P. X.	—	5.6 (94.0%)
Harrison and Self	6.61 (100%)	5.96 (100%)
Proposed Method	6.4 (96.8%)	5.63 (94.4%)

A New Cinchona Extract.—The process of extraction for assay was extended to the preparation of a soft extract, glycerin being added prior to evaporation of percolate in order to prevent formation of hard clots as evaporation proceeds. The processes and formulas suggested are:—

SOFT EXTRACT OF CINCHONA

Cinchona bark in 60 powder 100.0

Moisten with a mixture of 90 per cent. alcohol 92.5 and strong solution of ammonia 7.5, and then percolate with a mixture of 90 per cent. alcohol 99.0 and strong solution of ammonia 1.0 until 5 c.c. evaporated and the residue taken up in dilute sulphuric acid gives only an opalescence with Mayer's reagent. To the mixed percolates add glycerin 10.0 and evaporate to the consistency of a soft extract.

Assay by the method as suggested for the bark, taking 2.0 gms. of the soft extract. Evaporate further or dilute with glycerin to produce a soft extract containing 15 per cent. of the total alkaloids of cinchona bark.

LIQUID EXTRACT OF CINCHONA

Soft extract of cinchona 33.3
Alcohol 90 per cent. 25.0
Water 25.0

Mix, add

Hydrochloric acid 3.0
Water to 100.0

Filter.

Determine the proportion of total alkaloids by the process as for the bark, using 5 c.c. liq. ext. cinchona, commencing at the words "10 c.c. alcoholic potash, etc."

ACID INFUSION OF CINCHONA

Soft extract of cinchona 1.5
Aromatic sulphuric acid 1.25
Water 100.0

Bring the water to the boil, add the soft extract and acid, infuse for fifteen minutes in a covered vessel, strain whilst hot.

TINCTURE OF CINCHONA

Soft extract of cinchona 6.6
Alcohol 90 per cent. 30.0
Hydrochloric acid, pure 0.5
Water 30.0

Mix, add

Water to 100.0

Filter.

If the presence of an acid in the tincture be thought undesirable, the preparation can be mixed off according to the formula:—

Soft extract of cinchona 6.6
70 per cent. alcohol to 100.0

Filter if necessary. Determine the proportion of total alkaloids by the process as for the bark, taking 55 c.c.s of the tincture and commencing at the words "10 c.c. alcoholic potash, etc."

Preparations were made from cinchona in No. 60 powder containing 5.63 per cent. total alkaloids (when assayed by

British Pharmaceutical Conference, 1927.

the proposed method), and according to the method indicated in the following table. The amount of alkaloids extracted is shown as a percentage of the total available, and the last column contains percentage assay of alkaloids in left in the dried marc:—

Preparation	Amount taken	Product	Strength of preparation	Percentage yield of alkaloids	Percentage of alkaloids found in dried marc
Ext. Cinch. Liq. B.P. process	250.0 Gm.	155.0 C.c.	5.0	55.1	43.9
Tr. Cinch. B.P. process ..	100.0 Gm.	500.0 C.c.	0.68	60.7	35.7
Proposed soft extract ..	500.0 Gm.	173.0 Gm.	15.0	92.1	7.05

The proposed preparations do not differ very much in appearance from the present B.P. products, but they will certainly be more uniform, especially in the case of the liquid extract, whilst preparations must conform to pharmacopœial standards it is equally important that there shall be no undue variation in physical characters and appearance. The communication is from the laboratories of Messrs. C. R. Harker, Stagg & Morgan, Ltd. Some of the practical work was carried out by Mr. J. B. Styles.

DISCUSSION

The CHAIRMAN opened the discussion by remarking that the British Pharmacopœia liquid extract of cinchona was not satisfactory. It was important to get a uniform product, and the author's suggestion seemed to have much in its favour.

Mr. DEANE agreed that the B.P. process was an exceedingly bad one; the yields were very low. He inquired whether the appearance of the new preparation differed much from that of the B.P.

Mr. WALMSLEY had noted the presence of pyridine, and asked whether the author had also found it.

Mr. BOYES desired information as to the proportion of the cinchona alkaloids to each other. The possibility of preparations of the alkaloids themselves might, he suggested, be considered.

Mr. SELF remarked that the B.P. process was beyond hope—a survival of the dark ages. It was surprising that there had not been more trouble with analysts. He asked whether there were any notes available as to the volumes of alcohol and ether used.

Mr. TODD, replying on the points raised, remarked that his paper had been written from a druggists' point of view, not from a chemical manufacturer's. The appearance of the new liquid extract was practically identical with that of the official liquid extract. Ether presented a difficulty if used alone, but in the present process it was used in the presence of alcohol.

The author was thanked for his contribution.

The CHAIRMAN then asked Mr. Short to read the paper on:—

Sulphur Sublimatum

By C. OLIVER GRIFFITHS, Burroughs Scholar.

[ABSTRACT]

THE British Pharmacopœia describes sublimed sulphur as consisting, under the microscope, of "irregular angular particles, mixed with almost opaque globules." Thirty-four samples of flowers of sulphur, purchased in England and Scotland, were examined microscopically by Professor H. G. Greenish. Of these, sixteen were undoubtedly sublimed sulphur, being composed of opaque globules associated with an occasional angular mass. Four were ground sulphur, and the remaining fourteen appeared to be mixtures of sublimed sulphur with ground sulphur. Consequently it appeared desirable to make further investigations with the object of making the official description more precise. Ground sulphur of commerce consists of particles deposited by a current of air (or inert gas) drawn through a disintegrator grinding fine qualities of crude Sicilian or Louisianian sulphur. Under the microscope it shows irregular, colourless, bluntly angular masses, asso-

ciated with smaller particles, but is free from opaque globules. A legal decision in March 1926 made it unlawful to sell ground sulphur as "flowers of sulphur." Carbon disulphide extraction in a Soxhlet apparatus showed 83.33 per cent. of soluble sulphur after one hour's extraction, further treatment yielding only small additional amounts of extractive. Cold extraction of 5 grams of sample with 100 millilitres of carbon disulphide, with occasional shaking during thirty minutes, gave almost identical results on evaporation of an aliquot portion of the filtered solution (10 mls being evaporated in a flat-bottomed dish. The residue was dried at 50° C. until loss in weight did not exceed 0.001 gm. in twenty-four hours. The same result is obtained by drying at 80° C. (with weighing at intervals of one hour). The following figures relate to samples of flowers of sulphur of known genuineness supplied by Messrs. Brandram, Rotherhithe:—

Genuine Flowers of Sulphur

Sample No.	Percentage Soluble in CS ₂	Percentage Insoluble in CS ₂
1	68.68	31.32
2	75.78	24.22
3	75.60	24.40
4	75.11	24.89
5	73.62	26.38
6	70.92	29.08

Commercial flowers of sulphur, selected from Professor Greenish's samples, gave the following results on testing as above:—

Commercial Flowers of Sulphur

Sample No.	Percentage Soluble in CS ₂	Percentage Insoluble in CS ₂
7	68.68	31.32
8	74.11	25.89
9	75.30	24.61
10	82.96	17.04
11	88.88	11.12
12	89.33	10.67

Samples 7, 8 and 9 gave figures for genuine flowers of sulphur, which results were confirmed by microscopic examination. Samples 10, 11 and 12, suspected of being mixtures of sublimed sulphur with ground sulphur, showed, when mounted in cresol and viewed under the microscope, colourless angular particles, the presence of which indicated ground sulphur (5 per cent. being detectable by the microscope). The behaviour with carbon bisulphide and cresol is consistent with the assumption that the globule consists of two modifications of sulphur, one of which is much more readily dissolved by carbon disulphide and by cresol than the other. If sublimed sulphur is mounted in cresol and heated gently, a change in the globules is evident. They lose their dark yellowish-brown colour and become more transparent and granular as though part of the globule had dissolved, which is probably what has taken place. Alteration in the monograph of "Sulphur Sublimation" of the British Pharmacopœia is suggested as follows:—

A slightly gritty, bright yellow powder, almost odourless and tasteless. Under the microscope it is seen to consist of almost opaque globules, mostly in strings, associated with an occasional angular mass. Burns with a blue flame, forming sulphur dioxide and leaving not more than 0.25 per cent. of fixed residue. When 10 gms. are mixed with water, filtered, and thoroughly washed, the mixed filtrate and washings require for neutralisation not more than 5 millilitres of N/10 solution of sodium hydroxide (limit of acidity). Yields not more than 80 per cent. of soluble matter when tested by the following process—Shake about 5 gms. of the finely powdered sulphur, accurately weighed, with 100 millilitres of carbon disulphide frequently during thirty minutes in a well-corked flask; rapidly filter off sufficient of the solution into a stoppered burette; allow 10 millilitres of the filtered solution to evaporate to dryness in a flat-bottomed glass dish, dry the residue at 80° until the loss of weight during one hour does not exceed 0.001 gm., and weigh. Arsenic limit 5 parts per million.

Judged by solubility test, sample 1 of genuine sublimed sulphur would be excluded. Samples 2, 3, 4, 5, 6, 7, 8, and 9 would pass the standard of quality. The paper, is contributed from the Pharmacy Research Laboratory of the Pharmaceutical Society.

British Pharmaceutical Conference, 1927.

DISCUSSION

The CHAIRMAN said that the paper was of particular interest to him, as he had given evidence in the law case referred to in the paper. He thought more knowledge was wanted about the chemistry and therapeutics of this element.

Mr. BREWIS asked why the B.P. refers to sublimed sulphur at all, and if there is any therapeutic value in flowers over powdered sulphur, assuming they are equally pure. He then referred to a case in which a retailer had been warned not to sell a particular compound liquorice powder, owing to the presence of powdered instead of sublimed sulphur. The powdered sulphur used by the rubber manufacturers is velvety to touch, and appears eminently suitable for pharmacy. Sublimed sulphur is easily altered to crystalline form, and he described how he had triturated genuine flowers of sulphur in a mortar and had found crystals produced. From this it is evident that sublimed sulphur used in compound liquorice powder might be mistaken by a zealous public analyst for a mixture of powdered and sublimed sulphur. He suggested that while maintaining the necessary tests for purity, powdered sulphur might be recognised in the next Pharmacopœia.

Mr. TODD explained that when flowers of sulphur came into use it was impossible to obtain powdered sulphur, though a different state of affairs existed to-day. Sublimed sulphur is extremely uniform in the size of particles, and if powdered were included in the B.P. it would be necessary to stipulate the size of the particles.

On the proposal of the chairman, a vote of thanks was accorded to the author of the paper.

The next two papers were :—

Stramonium and Other Species of *Datura*: A Comparative Study of the Structure of Their Leaves

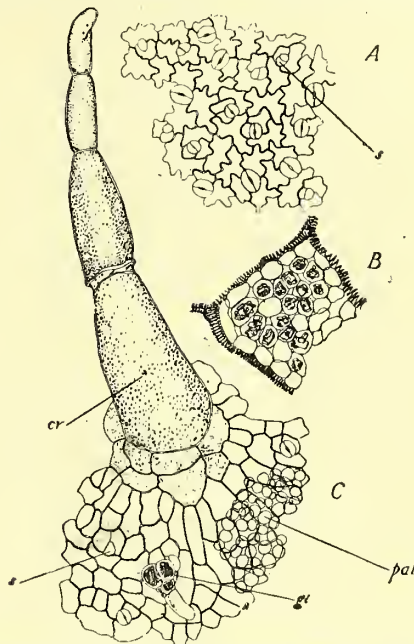
By HELEN A. TIMMERMAN, B.Sc.

[ABSTRACT]

THIS work, which is a contribution from the Pharmacognosy Research Laboratory of the Pharmaceutical Society, was undertaken in order to find characters by which the various species can be differentiated.

Datura Stramonium, Linn.—Fresh specimens were obtained from Chelsea Physic Gardens (in 1922 and

1926), the garden of the Royal Botanic Society, Regent's Park (1925), from Kew (1926). Specimens were also supplied by Mr. G. R. A. Short, curator of the museum of the Pharmaceutical Society, from plants grown in his own garden from English and from Egyptian seeds. The extended descriptions are in the main recapitulative of details already well known from the work of other pharmacognosists. The plants from Egyptian seed were exceptionally tall (4 ft.) and the leaves very large (attaining 23 cm. in length and a width of 18 cm.).

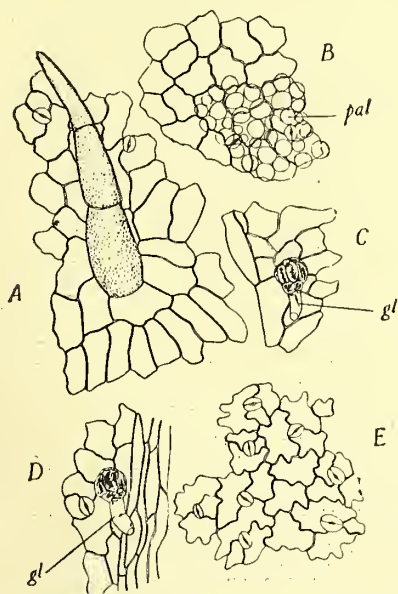


Datura Tatula, Linn., surface preparations of the leaf. A., lower epidermis; B., crystal layer and veins; C., upper epidermis; cr., calcium oxalate crystals; gl., glandular trichome; pal., underlying palisade tissue; s., developing stoma. x 150.

Datura Tatula, Linn.—The specimens were obtained from the above sources, the leaves being practically indistinguishable from those of *D. Stramonium*, with the exception of a deep purplish tint on the petioles (and stems if present). This pigment becomes a brilliant red colour on mounting thin fragments of tinted epidermis in strong hydrochloric acid (s.g. 1.16). The preparation must be examined as quickly as possible, as the colour soon fades. Undeveloped stomata are numerous on apparently full-grown leaves of *D. Tatula*.

Datura Innoxia, Miller.—Plants used for dissection were grown in 1925 by Burroughs Wellcome & Co. at Dartford, the seeds being originally obtained from Bangalore, India, under the name of "*D. Metel*, Linn." The leaves of this species are quite different in outline and texture to those of *D. Stramonium* or *D. Tatula*, being ovate and often somewhat cordate. They average about 12 cm. long by 7 cm. wide, but plants grown from Egyptian seed had leaves up to 26 by 18 cm. Typical long-stalked glandular hairs and an abundance of narrow, very acute, warty covering hairs distinguish this leaf from those of other *Datura* species. The characteristic glandular hairs have a two- to four-celled stalk (175 μ to 600 μ in length), about 10 μ in diameter, which is expanded into a spherical head about 30 μ across. In microscopical preparations they usually become bent over, and show a characteristic fold at the very base.

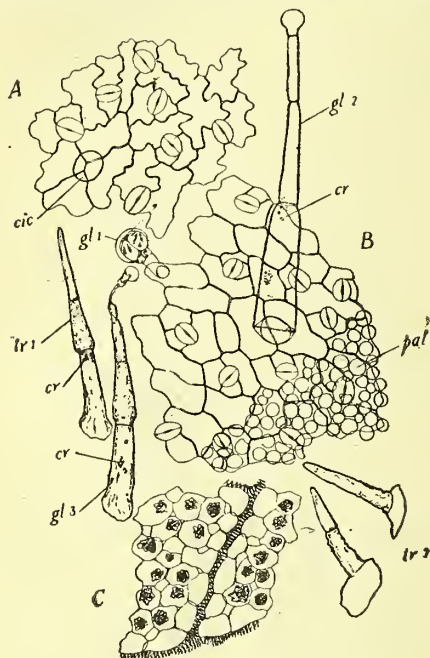
Datura Metel, Linn.—Freshly pressed specimens of "*Datura fastuosa*, var. *alba*, Nees," were obtained from the Royal Botanic Garden at Sibpur, near Calcutta. Several other Indian fresh specimens were sent from the Botanic Garden at Travancore (preserved in formaldehyde solution). Herbarium specimens were also examined. Full-grown leaves average 10 cm. long by 7 cm.



Datura Stramonium, Linn., surface preparations of the leaf. A.B.C., upper epidermis; D., upper epidermis showing elongated cells from a portion covering a vein; E., lower epidermis; gl., glandular trichome; pal., underlying palisade tissue. x 150.

British Pharmaceutical Conference, 1927.

across. They vary considerably in outline from nearly cordate with scarcely any sinuses to ovate and slightly acuminate with three or four coarse teeth, but the sinuses between these teeth are never subdivided, as in *D. Stramonium* or *D. Tatula*. Irregular masses of



Datura innoxia, Miller, surface preparations of the leaf. A., lower epidermis; B., upper epidermis; C., crystal layer and vessels; cic., cicatrix; cr., calcium oxalate crystals; gl. 1, short stalked glandular trichome; gl. 2, smooth long stalked glandular trichome; gl. 3, wartly and wrinkled, long stalked glandular trichome; pal., palisade tissue; tr. 1, wartly and wrinkled protective trichomes; tr. 2, smooth, wrinkled protective trichomes. x 150.

crystalline matter may extend over half the width of a transverse section of the lamina. Two types of trichomes occur in surface preparations: glandular hairs with short stalks (similar to those of *D. Stramonium*) and non-glandular hairs which are diagnostic (but also identical with those of *D. fastuosa*). The latter are covered with uneven granular projections. Each wartly, non-glandular trichome is conical in shape, tapering to a fine point at the apex. It consists of one to six cells, and may attain a length of 500μ . The basal cell rarely exceeds 75μ in length, which distinguishes *D. Metel* and *D. fastuosa* from *D. Stramonium* and *D. Tatula*, in which the basal cells of trichomes are seldom less than 75μ in length.

D. fastuosa.—Fresh specimens were grown in 1926 by Mr. G. R. A. Short at Reading from seeds sent from Cairo in 1925. Freshly pressed specimens were supplied from the Royal Botanic Garden near Calcutta, and preserved specimens were sent from Travancore. Herbarium sheets were also examined.

The leaves of this plant closely resemble those of *D. Metel*, being indistinguishable unless the specimen has been so preserved as to retain the purple colour on the petiole and stems.

KEY FOR IDENTIFICATION OF THE POWDERED LEAVES OF *Datura* SPECIES

A. Trichomes not very numerous and always of two kinds—short-stalked glandular hairs and wartly covering hairs.

1. Covering trichomes usually more than 35μ in diameter at the base; basal cell often more than 50μ in length.

a. No fragments coloured pink with hydrochloric acid (s.g. 1.16) or with solution of chloral hydrate.

D. Stramonium, Linn.

b. Some fragments coloured pink with hydrochloric acid (s.g. 1.16) or with solution of chloral hydrate.

D. Tatula, Linn.

2. Covering trichomes usually less than 35μ in diameter at the base, frequently curved. Basal cell seldom as much as 50μ in length. Irregular crystalline masses often present.

a. No fragments coloured pink with hydrochloric acid (s.g. 1.16) or with solution of chloral hydrate.

D. Metel, Linn.

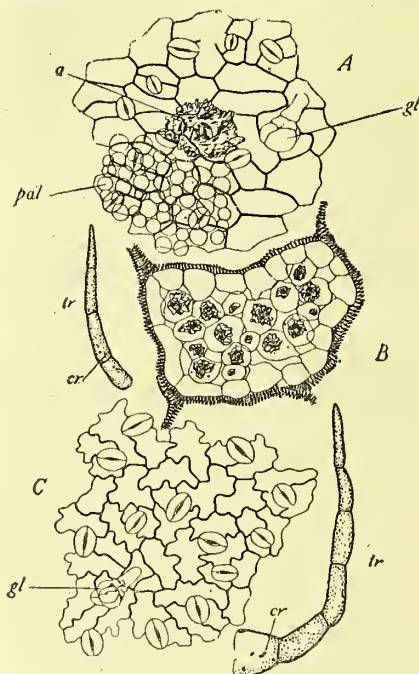
b. Some fragments coloured pink with hydrochloric acid (s.g. 1.16) or with solution of chloral hydrate.

D. fastuosa, Linn.

B. Trichomes very numerous and usually of three kinds: smooth, or slightly wartly long-stalked glandular hairs; short-stalked glandular hairs; wartly covering hairs. Basal cell of the covering hairs frequently more than 50μ in length, but never more than 50μ in diameter at the base.

D. innoxia, Miller.

Appreciation is expressed for assistance from Professor H. J. Greenish and Mr. T. E. Wallis. Thanks are



Datura fastuosa, Linn., surface preparations of the leaf. A, upper epidermis; B, crystal layer and vessels; C, lower epidermis; a, crystalline mass of unknown identity; cr., calcium oxalate crystals; gl., glandular trichome; pal., palisade tissue; tr., protective trichome. x 150.

accorded to the Pharmaceutical Society for facilities provided, and to Dr. Smith (Cairo), Mr. C. C. Calder (Calcutta), Mr. Pryde (Travancore), and Mr. Short for numerous specimens.

Stramonium and Other Species of *Datura*: A Comparative Study of the Structure of Their Seeds

By HELEN A. TIMMERMAN, B.Sc.

[ABSTRACT]

This communication continues the preceding pharmacognostic research on *Datura* species of authentic origin, and is an examination of their seeds for diagnostic characteristics. The size, shape and surface markings on the seeds of *Datura Stramonium* and *D. Tatula* are similar. Their food reserve contents and microscopical sections are also undistinguishable. The colour of these seeds vary from pale brown to black. The seeds of *D.*

British Pharmaceutical Conference, 1927.

Innoxia are larger and paler in colour (pale brown or buff), and do not show the reticulations of the seeds of *D. Stramonium* (though the surface is minutely pitted). In section the embryo of *D. Innoxia* is less curved than that of *D. Stramonium*. The seeds of *D. Metel* and *D. fastuosa* are practically indistinguishable, and resemble those of *D. Innoxia* in colour and size, but are ear-shaped rather than reniform, in outline. Chlorinated soda solution, B.P. was found to give the best results in macerating the seed coat in making surface preparations of diagnostic importance (18 to 72 hours being required). Surface preparations of the testa of the seed of *D. Stramonium* show, on focussing, outlines of the cells that appear confusedly sinuous because of the variable size, outline and position of the numerous interlocking processes arising from the upper part of the cells. These finger-like processes appear, in surface view, narrowly ovate or oblong-ovate in outline, and show a large

line, and show a large lumen and an evenly but somewhat lightly thickened wall.

The epidermal cells never exceed $350\ \mu$ in height. Pits are absent from the basal wall of the epidermal cells.

D. Stramonium, Linn.

D. Tatula, Linn.

B. The superior processes of the epidermal cells, in surface view, are circular or broadly ovate in outline, and show a small lumen and a heavily thickened wall, the lumen being sometimes evenly rounded and sometimes strongly radiate.

There are always a few epidermal cells exceeding $350\ \mu$ in height.

1. The epidermal cells from the flat faces show no pits in their basal walls. They closely resemble those of the ridges, but their superior processes are less strongly developed.

D. innoxia, Miller.

2. The epidermal cells from the flat faces show from five to twenty pits in their basal walls; otherwise they closely resemble those of the ridges, excepting that their superior processes are less numerous and less strongly developed.

D. Metel, Linn.

D. fastuosa, Linn.

DISCUSSION

Disoussion being invited, Mr. WHATMOUGH said that these were two papers of a type that should not be passed without a word of thanks to the author. The work was tedious and difficult, and one had to search a long way to find anything.

The audience, on the chairman's initiative, thanked the author by acclamation.

The next paper was:—

Tragacanth and its Mucilage—II

By NORMAN EVERS, B.Sc., F.I.C., and THOMAS
McCLACHLAN, F.I.C.

[ABSTRACT]

It was shown in a previous paper (Y.-B., 1924, p. 637) that:—

(1) The strength of tragacanth mucilage does not vary with the nitrogen content, or ash, of the gum.

(2) Heating the dry tragacanth to 100° or 120° C. seriously impairs the suspending power of its mucilage.

(3) Fine grinding also diminishes mucilage strength owing to heating of the tragacanth gum.

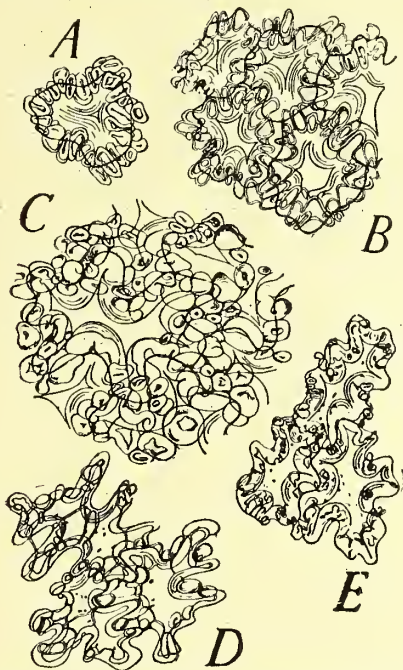
(4) Heating the mucilage by warming on a water bath for an hour causes more rapid attainment of uniform consistency than on standing in the cold.

Deterioration of Powdered Gum Tragacanth on Keeping.—Results on powdered tragacanth suggested that deterioration was going on, and tests were therefore made on samples kept in the laboratory for a known period. The results in Table I were obtained by the falling-ball method of the previous paper:—

TABLE I

Sample	Time for fall of ball (in seconds)		Period of storage	Container
	Original value	Final value		
No. 1 powder ..	121	31	3 months	Corked bottle.
No. 2 " ..	278	135	14 "	" "
No. 3 " ..	330	75	14 "	" "
No. 4 " ..	133	57	14 "	Screw cap jar.
No. 5 whole gum	450	165	14 "	Loosely covered tin.

Although the samples had not lost moisture, considerable diminution in strength had undoubtedly taken place, and experiments were begun in order to determine whether drying also caused deterioration. Two samples of tragacanth gum were stored in three different ways, with effects on mucilage strength as shown in Table II.



Surface preparations of the epidermis of the seed:—A, *D. Tatula*; B, *D. Stramonium*; C, *D. innoxia*; D, *D. Metel*; E, *D. fastuosa*. All $\times 150$.

lumen and an evenly but somewhat lightly thickened wall. They are characteristic, and enable these seeds to be distinguished from other similar seeds, more especially from those of *D. innoxia*. The seed of *D. Metel* has a margin which shows 3 (occasionally 4) ridges (more distinct along the wider end), giving a cord-like margin to the edge of the seed except where a large, pale-coloured, parenchymatous strophiole projects from the micropyle. The strophiole on these seeds is considerably larger than that of *D. innoxia*. The cells of the testa from the flat surfaces of the seeds of *D. Metel* show well-marked pits, to the number of 5 to 20, in the basal wall of each cell. A further peculiarity is the regular development of the narrow bands of thickening on the outer walls (only occasionally in the epidermal cells of *D. Stramonium*). The characteristic basal pittings and the well-developed bands of the external wall, taken together, form a reliable diagnostic character of the seeds of *D. Metel* and *D. Fastuosa*.

KEY FOR DISTINGUISHING THE POWDERED SEEDS OF *Datura* SPECIES

A. The superior processes of the epidermal cells, in surface view, are narrowly ovate or oblong-ovate in out-

British Pharmaceutical Conference, 1927.

TABLE II

Storage of sample	Time for fall of ball (in seconds)		Percentage of moisture	
	Original value	Final value	Original	Final
A. Over sulphuric acid ..	278	35	13.1	0
In corked bottle ..	278	135	"	14.1
Over water ..	278	257	"	—
B. Over sulphuric acid ..	133	—	15.0	0
In screw-capped jar ..	133	—	"	14.5
Over water ..	133	157	"	—

Fig. 1 shows graphically the progressive deterioration over sulphuric acid. The moisture content is accordingly one of the factors concerned in the deterioration of tragacanth. This was presumably the cause of the loss of strength noted on heating for a short time to 100°. That it is not the only factor is shown by the results on samples stored under ordinary conditions.

If tragacanth is an irreversible gel with a definite structure it is to be expected that reduction of moisture

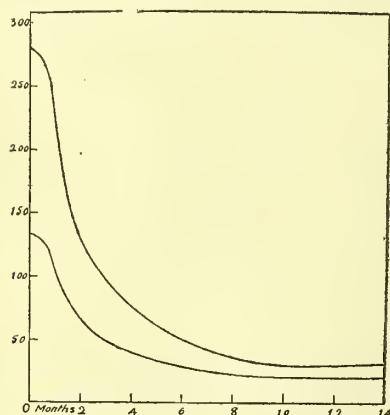


FIG. 1.—Curves showing rate of fall in viscosity. (Left: Time for ball to fall, in seconds.)

below a certain point would impair the mucilage strength. When some of the gum dried over sulphuric acid was placed in a damp atmosphere for a week it regained none of its original viscosity. Presumably, therefore, the structure of the gum is destroyed by drying, and it is not re-formed when the moisture is again added. This is in accordance with the results obtained with gluten in the swelling of dough. Possibly the tragacanth of commerce has been dried beyond the point at which breaking up of the structure begins, and the latter continues when the gum is kept under ordinary conditions.

The Effect of Heat on Tragacanth Mucilage.—Observations on mucilage kept for a year show that those made in the cold had better suspending power than mucilages made by warming on the water bath for an hour. The probability is, therefore, that heating causes a more rapid attainment of uniform consistency (with consequent increase of mucilage strength), but the structure is partially destroyed, and such mucilages never attain a final strength as high as those made in the cold.

There was no discussion, and on the proposal of the chairman a vote of thanks was passed.

The next paper was:—

Determination of Morphine in Compound Tincture of Camphor

By CHARLES M. CAINES, F.I.C.

[ABSTRACT]

THE examination of a sample of compound tincture of camphor, which had become cloudy, showed that the deposit consisted of calcium and iron meconates, whilst

meconic acid could not be detected by ferric chloride in the filtered tincture. In order to ascertain whether any diminution in morphine content had occurred, a process for determining small quantities of morphine fairly accurately was desirable. The method of extraction suggested by Nichols ("Analyst," 1922, p. 506) was found suitable. The following process was adopted as a result of a number of experiments:—

20 c.c. of the compound tincture of camphor is acidified with one or two drops of diluted acetic acid, evaporated to dryness on the water-bath. The residue is dissolved in 10 c.c. of alcohol (60 per cent.) and the alcohol evaporated off. After dissolving in 10 c.c. of distilled water, and a slight excess of lead acetate added, the solution is made up to 20 c.c. with distilled water and an aliquot portion filtered off. The excess of lead acetate is removed by sodium phosphate and an aliquot portion of the filtrate made alkaline with 10 per cent. potassium hydroxide solution. The alkaloids other than morphine are extracted by shaking out with three successive quantities of 10 c.c. of ether. The mixed ethereal extractions are washed with 1 c.c. of 10 per cent. potassium hydroxide solution and the washings added to the main alkaline liquid. The ethereal extractions may be evaporated to dryness, dried at 100° C., weighed, and identified micro-chemically, if necessary. The alkaline liquid is washed with chloroform, mixed with ammonia solution, and extracted first with a mixture of one volume of alcohol and one volume of chloroform followed by three or, if necessary, four further extractions with a mixture of half a volume of alcohol and one volume of chloroform. The mixed alcohol-chloroform extractions are evaporated to dryness, the residue dried at 100° C., weighed, dissolved in 10 drops of normal sulphuric acid, and made up to a definite volume. A suitable quantity (10 c.c.) is mixed with 10 drops of a saturated solution of potassium iodate, allowed to stand for five minutes, one drop of strong ammonia solution for each 1 c.c. of solution added, and at the end of two minutes the colour is compared with a series of standards prepared from a standardised solution of pure morphine.

The potassium iodate reaction is characteristic of morphine, but the presence of this alkaloid may be confirmed by precipitation and micro-chemical identification.

Compound tincture of camphor, B.P., contains 0.05 gm. of morphine in 100 c.c. Two determinations of morphine carried out as above showed 0.047 and 0.043 per cent. of morphine. The process is applicable to the B.P. tincture of opium, if only small quantities are available. Working on 10 c.c. of tincture of opium which assayed 1.00 per cent. of anhydrous morphine by the official method gave 1.07 per cent. by the above process.

The iodate reaction is a rapid and easy means of verifying the strengths of the official solutions of morphine, preliminary treatment being unnecessary. A measured quantity of solution containing not more than 0.004 gm. (preferably 0.002 gm.) of morphine is made up to 10 c.c. with distilled water. Add 10 drops of normal sulphuric acid solution and 10 drops of a saturated solution of potassium iodate. Allow to stand for five minutes, add 10 drops of strong ammonia solution, and at the end of two minutes compare the colour produced with that obtained from a standard morphine solution, treated in a similar manner.

Pills, ampullæ, and tablets may be similarly examined. A case in point was ability to express an opinion that some pills were $\frac{1}{2}$ grain morphine pills when only one or two pills were available.

The work involved in this note was carried out in the laboratories of Allen & Hanburys, Ltd.

DISCUSSION

Mr Todd remarked that this paper was something of a coincidence, because at the 1905 Brighton Conference Mr. F. C. J. Bird read a monograph on compound tincture of camphor. The author's remark that the potassium iodate reaction was characteristic of morphine was, he suggested, intended to be taken with one reservation, as psychotrine gave the same reaction.

The author was thanked by the chairman on behalf of the audience.

British Pharmaceutical Conference, 1927.

The last paper taken at this session was:—

The Extractive of Ginger

By J. R. WALMSLEY, F.I.C., Ph.C.

[ABSTRACT]

OPINIONS as to what constitutes official ginger are exceedingly divergent. Only the last German Pharmacopœia (6th edition, 1926) clearly defines ginger as "the wholly decorticated, dried rhizome of the West Indian cultivated *Zingiber officinale* (Roscoe); contains 1.5 per cent. of ethereal oil." The U.S.P. X. admits Cochín and African gingers as well as Jamaica ginger for the preparation of galenicals. The B.P. description excludes partially scraped varieties, and according to the B.P. Codex, the procedure of scraping followed in Jamaica yields B.P. ginger. Thus the method of preparation and not the place of origin characterises official ginger, and Cochín ginger could conceivably be regarded as complying with B.P. requirements if completely scraped. The value of ginger lies in its oleo-resin content, the volatile oil being responsible for the odour and pungency. The Jamaica variety has the finest odour owing to the higher proportion of oil to resin compared with other gingers. The opposite is the case with African ginger, in which there is an increase in the proportion of resin which reduces the amount of odorous oil. This volatile oil is driven off in the official method of assay by weighing the alcoholic extractive, the resin only being weighed. The oil in ginger tends to resinify on keeping, and higher figures are then yielded for alcoholic extractive. The following tables contain results of tests for ginger included in the British Pharmacopœia, 1914, on authentic samples from sources specified. The official methods do not give true percentages, but these are near enough for practical purposes:—

TABLE I.—African Gingers (Ground)

Percentage of Extractive		Percentage of Ash		
Alcoholic	Aqueous	Total	Water Insoluble	Water Soluble
6.55	13.50	6.21	3.58	2.63
7.90	13.32	5.56	3.47	2.09
5.60	14.40	4.85	2.90	1.95
5.90	11.80	4.68	2.12	2.56
6.40	13.70	5.85	2.79	3.06
7.72	12.08	3.89	1.59	2.30
7.10	12.50	4.16	2.23	1.93
7.90	12.60	4.22	2.10	2.12
6.55	13.60	4.11	1.92	2.19
6.30	13.80	4.50	2.60	1.90
6.00	12.60	4.83	2.08	2.75

TABLE II.—Cochín Gingers (Ground)

Percentage of Extractive		Percentage of Ash		
Alcoholic	Aqueous	Total	Water Insoluble	Water Soluble
5.76	10.64	5.55	2.41	3.14
6.80	13.50	5.44	2.70	2.74
6.30	12.80	5.79	2.81	2.98
5.87	13.60	5.39	2.72	2.67
5.20	13.30	5.34	2.36	2.98
5.30	12.50	6.45	3.92	2.53
6.15	12.00	7.65	4.90	2.75
4.35	12.05	5.91	2.94	2.97
4.75	12.800	5.98	3.53	2.45
4.60	13.25	5.68	3.10	2.58

The samples marked "S" in Table IV are from Squire's "Companion" (19th edition, 1916), and it is assumed that they refer to the Jamaica variety, though the variety is not specified. The samples marked A, B, C, are from recently imported lots, which were further examined with the results in Table V.

TABLE III.—Jamaica Gingers, Scraped and Unbleached (Ground)

Percentage of Extractive		Percentage of Ash		
Alcoholic	Aqueous	Total	Water Insoluble	Water Soluble
5.55	18.50	3.55	1.08	2.47
6.30	18.10	3.63	1.19	2.44
6.00	17.80	2.84	1.20	1.64
6.75	14.37	3.28	0.87	2.41
5.20	17.70	3.37	1.02	2.35
4.50	13.80	3.24	1.12	2.12
4.00	16.70	3.33	1.06	2.27
4.35	15.75	3.27	0.67	2.60
3.60	15.60	4.16	1.74	2.42
4.28	16.96	4.48	1.49	2.99
5.20	18.90	3.26	(0.76)	2.50 S

TABLE IV.—Jamaica Gingers, Scraped and Unbleached (Unground)

Percentage of Extractive		Percentage of Ash		
Alcoholic	Aqueous	Total	Water Insoluble	Water Soluble
4.90	13.30	3.18	(1.52)	1.66 S
4.80	14.20	3.24	(1.54)	1.70 S
3.55	13.90	3.23	1.06	2.17 A
4.90	15.00	3.52	1.04	2.48 B
4.50	14.60	3.66	0.94	2.72 C

Official Limits

Not less than 5	Not less than 8.5	Not over 6	—	Not less than 1.5
-----------------	-------------------	------------	---	-------------------

TABLE V.—Analysis of Jamaica Ginger, Scraped and Unbleached

	Sample A	Sample B	Sample C
	Per cent.	Per cent.	Per cent.
Moisture (lost in 2 hrs. at 100°)	12.91	13.93	13.59
Alkalinity of soluble ash (as K ₂ CO ₃)	1.38	1.97	2.00
Alkalinity referred to water (soluble portion) ..	64.15	79.43	73.53
Ethereal extractive (dried 24 hrs. over sulphuric acid)	4.64	5.08	4.28
Ethereal extractive dried at 100°C (U.S.P. X.)..	3.52	3.64	3.16

Of fifteen samples of Jamaica ginger only six reach B.P. requirements for alcoholic extractive, whereas seven out of ten Cochín samples and all the African samples are well above the minimum requirement. This means that on this basis almost two-thirds of the finest ginger imported would be rejected as unfitted for medicinal use. There is no doubt, among the majority of practising pharmacists, that scraped, unbleached Jamaica ginger should exclusively be used in pharmaceutical preparations, the oily fraction being regarded as important therapeutically as the resinous fraction. If the B.P. monograph is to include only the unbleached Jamaica variety (as is probably intended), the figure for alcoholic extractive must be reduced to between $\frac{3}{2}$ and 4 per cent. or abolished altogether, as has been done in the U.S.P. The aqueous extractive limit could be raised to 12 per cent., or even higher. In the absence of data, the extractive of tinct. zingiberis, B.P., would be taken to be one-tenth that of the B.P. figure for the rhizome, viz., 0.5 per cent. w/v, which is the figure given by Squire. It will be seen that 0.4 per cent. w/v would be more correct, this figure being given as the minimum by Moore and Partridge ("Aids to Analysis," 4th edition). In examining a large number of tinctures prepared from fine, freshly ground Jamaica ginger, the figures for "total solids" were found to

British Pharmaceutical Conference, 1927.

range from 0.415 per cent. w/v to 0.480 per cent. w/v, the average being 0.446 per cent. w/v. The above figures were obtained in the works laboratory of James Woolley, Sons & Co., Ltd.

DISCUSSION

Mr. MEEK pointed out that the colour, flavour and aroma, which are important in retail sale, might not be of value so far as extractive is concerned.

The Science Section then adjourned.

Science Section—Wednesday Morning

Having watched the ladies depart on their Wednesday morning excursion in glorious weather, the supporters of the Science Section entered their appointed hall, possibly with some reluctance, a few minutes after ten o'clock. The chairman of the Conference first called on Mr. F. Wokes to read an abstract of the paper entitled:

Detection and Estimation of Vitamin A and Vitamin D

By FRANK WOKES, B.Sc., F.I.C., Ph.C., and
STANLEY G. WILLIMOTT, Ph.D., B.Sc., A.I.C.

[ABSTRACT]

THIS paper records results of an investigation into the fat-soluble vitamins A and D undertaken on behalf of the Scientific Advisory Committee of the Pharmaceutical Society, the main object being the evolution of reliable and convenient assay methods:—

Part I, Animal Tests.—The first point of importance was the necessity of obtaining a source of vitamin A which was free from vitamin D in order to secure a clear differentiation between the effects of these vitamins. An acetone-ether extract of dried spinach has never failed in experiments so far to secure complete freedom from xerophthalmia. Practically normal growth is produced over periods of two to three months by doses as small as 25 mgm. of this extract, which is not much larger than the protective dose of an average cod-liver oil. In preparing the extract care must be taken to avoid loss of vitamin A by oxidation, but the method seems effective in destroying whatever vitamin D was present. It is considered that this spinach extract fulfils satisfactorily the requirement of a potent source of vitamin A free from vitamin D. Two groups of pedigree albino rats were selected so as to be strictly comparable in age and weight. Six animals receiving vitamin A as spinach extract, but no vitamin D, grew at a steady rate for sixty-three days and showed an average increase of 123 per cent. on the original weight (instead of about 195 per cent. when all four vitamins are supplied). The rate of increase during ten days was almost unaltered on giving vitamin D (as cod-liver oil) as compared with a like D-free period. No signs of xeroph-

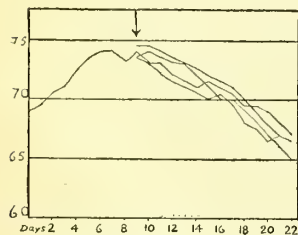


Fig. 1 (cod-liver oil administered daily after point marked by arrow)

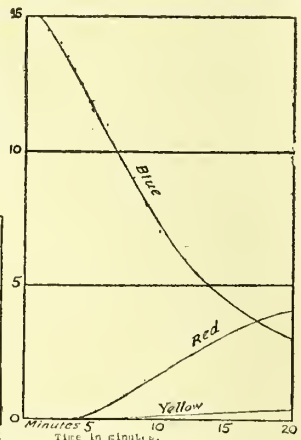


Fig. 2 (blue with xanthophyll; at side, tintometer readings in Lovibond units)

thalmia were observed, and there were distinct symptoms of vitamin D deficiency, though definite rickets was not obtained. The second (A-free) group of six

animals receiving vitamin D as direct irradiation rapidly lost weight, growth ceasing in from seventeen to forty days. Two animals only exhibited signs of xerophthalmia, but no symptoms of rickets were observable in the autopsy examinations.

In experiments upon vitamin D research workers in the British Isles have generally employed a "high fat" diet (containing 15-17 per cent. of fat), whereas American investigators use a "low fat" diet (with less than 3 per cent. fat). In assay for vitamin D in dried milks there will be obvious difficulty in using a "low fat" type of diet, and it is of interest to know whether change in faecal PH (Zucker's test for vitamin D) is independent of variations in composition of the diet. By the co-operation of Dr. T. Redman, of the Liverpool

City Public Health Laboratories, many hundred examinations of the gastro-intestinal tract of animals were made by the quinhydrone method, using special capillary electrodes. The caecum and large intestines appear to be the most significant areas for vitamin D action and calcium absorption, which agrees with the findings of Bergeim ("J. Biol. Chem.," vol. 70, p. 20). The reaction in these

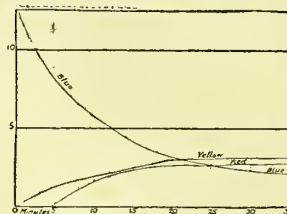


Fig. 3 ("Blue" = curve given by carotin with antimony trichloride; at side, tintometer readings in Lovibond units)

areas was always acid (below PH 6.8) with a large number of rats of different age and sex on both "high fat" and "low fat" diets so long as adequate amounts of vitamin D were present. It became alkaline (above PH 7.2) on withholding vitamin D, the reaction of the faeces being in agreement, but acidity followed readministration of antirachitic vitamin. Jephcott and Bacharach ("Biochem. Journ.," vol. 21, p. 1351) have shown that this change over can be brought about by direct irradiation, irradiated cholesterol, cod-liver oil, or "Ostelin."

In order to examine further the possibility of quantitative application of Zucker's test, four young albino rats were put upon the D-free diet of Zucker until their faeces had become alkaline on several successive days. Each rat was placed in a separate cage and given the same dose (0.15 gm.) of cod-liver oil. The PH value of the faeces of each rat was determined separately, and it was found, as shown in Fig. 1, that the change over from alkalinity to acidity occurred at approximately the same rate. It would appear that the Zucker method of detecting vitamin D might be elaborated into a rapid and reliable method of assay. It is suggested that following changes in faecal PH would involve only a little extra work in the routine test for vitamin D at present employed in the Pharmacological Laboratories of the Pharmaceutical Society, which method is a modification of the "line test" of MacCollum using a "low fat" diet. The information thus furnished might facilitate considerably the development of quantitative assay methods. Clear-cut results could not be obtained on applying the Zucker test to children under treatment for rickets. In general the administration of vitamin D to children appears to produce acid faeces, but the difficulty of controlling the diet seems to be more significant in children than in rats. The tendency to diarrhoea on giving children too large a dose of cod-liver oil or irradiated cholesterol prevented the carrying out of a metabolism experiment for following calcium retention in relation to faecal reaction.

Part II, Chemical Tests.—The two most promising colour tests for detecting vitamin A are the arsenic trichloride test of Rosenheim and Drummond and the antimony trichloride test of Carr and Price. The initial blue colour represents an absorption band between $\lambda 550$ and $\lambda 590$, but its intensity gradually decreases after two or three minutes and absorption becomes general throughout the visible spectrum as yellow and red bands make their appearance. Finally, a red-brown colour is

British Pharmaceutical Conference, 1927.

attained. A number of non-vitamin substances also give blue colours with the above reagents, but can be distinguished by their greater permanence and certain differences in their absorption spectra. The rate of colour production is influenced by the dryness of the reagent. By using chloroform dried for several weeks over anhydrous calcium chloride the blue colour with antimony chloride was present in measurable amount after an hour instead of fading in about four minutes. Fig. 2 shows the intensities with dry reagent during the first twenty minutes. Comparison with the colour intensity curve for xanthophyll, which gives a permanent blue colour with the antimony trichloride reagent, shows that *fading* is characteristic of the vitamin coloration. On this account it will be necessary to fix a time limit for taking readings, the authors having adopted one of

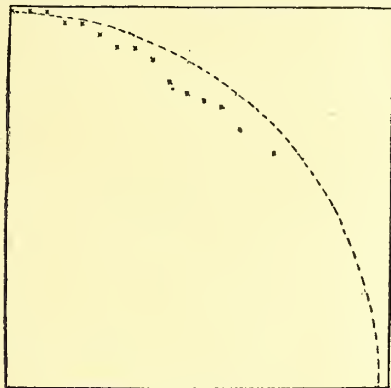


Fig. 4

30 seconds. The above results were obtained with an Iceland cod-liver oil in which it is believed that the vitamin was in a very stable condition owing to conditions of preparation and storage. Results from a less stable Norwegian oil are plotted in Fig. 3, where it will be seen that the yellow has consistently higher values and appears more rapidly. The curve given by carotin with antimony trichloride reagent is also shown in Fig. 3. The colours given by plant pigments differ from vitamin blue by their persistence, which masks the latter transient blues. The interfering pigments can be removed by adsorption on charcoal, shaking a petroleum ether solution with 5-10 per cent. of "Norit" for one to two hours, being usually sufficient to effect decolorisation. By this means the presence of vitamin A has been demonstrated by chemical methods in orange juice, spinach, carrots, and maize germ oil. Apparently it will be possible to differentiate between pigments and vitamins in foodstuffs such as margarines.

The Lovibond tintometer enables the diminution of blue colour and parallel increase of yellow and red to be followed. It would appear to be indispensable for accurate estimation of vitamin A, colorimetrically giving duplicate results within about 5 per cent., compared with the 30-50 per cent. error in animal tests. Fig. 4 shows graphically the increase in rate of destruction of vitamin A in cod-liver oil by exposure to ultra-violet light. The immediate effect of irradiation for ten minutes at 3 inches was a loss of about 3 per cent. of vitamin, but this increased to 25 per cent. on keeping three months, and not much of the vitamin was left by the end of six months. The theoretical curve for this process of rendering vitamin A unstable was calculated, and, as shown in Fig. 4, the average deviation is not more than 5 per cent. The rate of destruction on oxidation by an air current was followed by colour tests at 88°, 98°, 108°, 118°, and 125° C. The curves for the rate of destruction correspond (within 5 per cent.) to a calculated temperature co-efficient of 1.42 for each rise of 10° C. The failure by Rosenheim and Webster to obtain a colour reaction with antimony chloride on an oil of low vitamin content which gave positive colour test with arsenic trichloride is explained by the forma-

tion of an oily liquid which interferes with the sensitivity of the antimony trichloride reagent. Recent work on cholesterol derivatives appear to indicate the possibility of vitamins A and D being derivatives of the same parent substance. Indebtedness is expressed to various professors for their generous assistance and to many firms for supplies of vitamin-active products.

DISCUSSION

Mr. BROOM inquired how much spinach was represented by 25 mg. of the authors' extract, adding that Mr. H. D. Richmond had been working on the destruction of vitamin A in cod-liver oil on keeping.

Mr. WHATMOUGH suggested that the authors might be progressing too fast in identifying a colour reaction with vitamin A. They were on safer ground in vitamin-D research.

Mr. BOYES referred to a suggestion that experiments with rats should be carried out in the reverse order—that rickets should be induced artificially, and then tests made of a dosage to cure it. The basal diet was important, and a standard for it would seem to be needed.

Mr. BENNETT pointed out that sunlight and certain emulsifying agents (acacia and Irish moss particularly) destroyed the vitamin-A content of cod-liver oil. Feeding experiments were lengthy. It was a question how best to apply the colour test to a cod-liver oil emulsion.

Dr. JOWETT emphasised the importance of accurate colour tests for vitamin A in cod-liver oil. There was a danger of the League of Nations or some other body rushing in and setting up an impracticable test. (Laughter.) Great ingenuity had been shown in the paper: one had to be very cautious, however, in drawing deductions from the rate of destruction of colour in tests. Was not the only safe way to connect the colour test with the biological test? It was not practicable to wait six weeks or two months for carrying out tests in cod-liver oil before buying it, and then get a large percentage of error.

Mr. EVERS said that the colour test was not quite a measure of vitamin A. Was there any quantitative comparison between spinach tests and cod-liver oil tests?

Mr. WOKES, replying to a lengthy discussion, gave further details of the authors' methods, and indicated some of the problems remaining for investigation. The temperature coefficient was a sound method of estimating vitamin destruction. The specificity of colour tests was not yet completely established. Preventive and curative experiments had been tried. Ergosterol variation was a big question. Oxidases in mucilage appeared to destroy vitamin A; if so, gum acacia should not be used for emulsifying cod-liver oil. The authors had not applied the colour test direct to cod-liver oil. It should be possible to evolve a colour test with a suitable solvent. The large amount of pigment in spinach presented a difficulty in preparing the extract.

The authors were thanked for their communication.

The next paper (also relating to vitamin research) was:—

Factors Affecting the Stability of Antimony Trichloride Reagent for Vitamin A

By FRANK WOKES, B.Sc., F.I.C., Ph.C., and JOSEPH R. BARR, B.Sc., A.I.C.

[ABSTRACT]

THIS communication consists of a preliminary account of the factors affecting the stability of antimony trichloride, this being of increasing importance in estimating vitamin A. Antimony chloride consists, when pure, of white translucent prisms, melting at 73° C. Commercial samples are usually deliquesced and contaminated with oxychloride, occasionally being tinged yellow. The method of purifying the crystals by washing with chloroform, suggested by Cocking and Price, is not very effective, as the oxychloride is insoluble in chloroform. On the other hand, recrystallisation from chloroform yields pure antimony trichloride, which keeps clean and dry for months on storage in a desiccator. The presence of chlorine in the solvent molecule appears to accelerate the

British Pharmaceutical Conference, 1927.

reaction with vitamin A, benzene, toluene, or xylene solutions of antimony trichloride having very little action with this vitamin. This is significant, especially in view of results by Heiger ("Biochem. Journ.," vol. 21, p. 407) that the rate of decomposition of cholesterol by x-rays depended upon the amount of chlorine in the solvent. Though the presence of phosgene aids the action of certain other colour tests for vitamin A, the absence of both free chlorine and phosgene should be ensured in antimony trichloride testing, as their presence is undesirable, inasmuch as they accelerate fading of vitamin blue. The procedure of dehydrating chloroform made the reagent unusually sensitive. In preparing the solutions excess of pure recrystallised antimony trichloride was shaken with a given volume of the purified chloroform in a dry stoppered bottle for several weeks, until no more had dissolved. The weight of the residue indicated how much had gone into solution. This was checked by estimating the antimony with decinormal solution of iodine, using a modification of Treadwell's method, with the addition of tartaric acid to prevent hydrolysis. From results in Table I it will be seen that solutions stronger than 28 per cent. (w/v) of SbCl_3 could not be prepared without the use of heat. If antimony trichloride is melted and mixed with chloroform, it is quite easy to make solutions containing more than 30 per cent. (the strength recommended by Carr and Price). An objection to the use of heat is that it tends to produce a less stable reagent containing small amounts of free chlorine (as shown by the yellow tint of the solution and positive results with starch-iodide tests). The persistence of blue colour in vitamin testing is also much shorter.

On keeping chloroform solutions of antimony trichloride for several months small amounts of a colourless, heavy oily liquid settle out, which gradually turn yellow, especially on exposure to sunlight. Protection of the reagent from sunlight seems to retard, but not prevent this separation, which occurred in all solutions (whether prepared with anhydrous or with B.P. chloroform; made in the cold or by heating; and in a solution of antimony trichloride in chloroform (30 per cent. (w/v) supplied for vitamin testing by The British Drug Houses, Ltd.). The removal of moisture retards formation of this oily liquid, but very thorough drying of the chloroform has not prevented its eventual formation.

TABLE I.—SOLUTIONS OF ANTIMONY TRICHLORIDE IN CHLOROFORM

How made	Sp. gr. (at 15°C)	Per-centage of Sb by titra-tion	W/V of SbCl_3 by esti-mation	Colour	Tests for free Chlorine	Persist-ence of vitamin blue in minutes
A. In cold ..	1.592	12.4	23.5	White	±	12—20
B. In cold ..	1.605	14.2	32.2	White	+	8—15
C. By heat ..	1.618	15.9	30.1	Tinged Yellow	++	3—6
B. + H_2O (0.1%)	1.607	14.2	26.9	White	+	5—10
D. purchased ..	1.617	16.0	30.4	Tinged Yellow	++	3—6

Solution B was made by shaking at intervals for several weeks, in order to dissolve as much as possible. The undue amount of shaking had probably reduced its sensitivity. The times of persistence of vitamin blue were obtained by adding to 8 c.c. of the reagent 1 drop of a potent and stable Iceland cod-liver oil.

The oily liquid is readily produced on reduction of temperature to about 13° C., the reagent clearing on warming to 20° C., but a few drops still separate out, and the reagent can be removed by decantation. Owing to this phenomenon it is recommended that the antimony chloride test should not be performed below 15° to 16° C. Samples of the oily liquid had a specific gravity of 1.685 to 1.691 and an antimony content of 40.8 to 45.4 per cent. Solutions made by adding chloroform to melted antimony trichloride had similar properties. It is considered probable that reagent is a delicately balanced solution affected by temperature variations with the separation of a solution of chloroform in antimony chloride or some similar antimony compound. The reagent should be protected from undue lowering of temperature, and from light, moisture and air, as these factors enter into its

preparation and storage. A grant from the Scientific Advisory Committee is acknowledged.

DISCUSSION

Mr. WHATMOUGH pointed out that it was desirable to suspect one's instruments in all experimental work. In the present case one was testing for an unknown something (vitamin A) by means of a reagent of unknown purity for an unknown colour. The spectroscope determined the energy values of different rays in regard to which temperature was misleading.

Mr. WHITE remarked that in getting a colour reaction with an unseen vitamin the antimony trichloride must be freed from all impurities.

Mr. WOKES, in reply to the points raised, agreed that the purity of reagents was very important.

The next paper, read by Dr. Willimott, was:—

Some Constituents of Citrus Fruits

By STANLEY G. WILLIMOTT, PH.D., B.Sc., A.I.C., and FRANK WOKES, B.Sc., F.I.C., PH.C.

[ABSTRACT]

THE fruit of the genus *Citrus* consists of a thick-walled berry, the interior of which is occupied by glandular hairs full of juice. The fact that these hairs are attached to the berry wall traversed by anastomosing vessels leading to the pigmented part of the peel suggests a possible connection between the photosynthetic activity in this flavedo and the constituents found throughout the fruit. In the belief that these biochemical activities are connected, a number of animal experiments were conducted during the past two years on typical Italian and Californian fruits, with the results summarised in Table I.

TABLE I

Vitamins and Enzymes in Citrus Fruits

—	Flavedo				Juice			
	Vitamins			Perox- idase	Vitamins			Perox- idase
Orange (<i>C. Aurantium</i>)	AA	BB	CC	+	AA	BB	CCCC	±
Lemon (<i>C. Medica</i> , var. <i>Limonum</i>)	? A	BBB	—	+	—	B	CCCC	+
Grape-fruit (<i>C. decumana</i>)	—	BBB	?	++	—	B	CCC	+

Oxygenases were absent in all cases.

The fruits used were "Sunkist" navel oranges from California, Palermo lemons, and grape-fruit from Florida. Some of the results were obtained by other workers. The approximate vitamin content is shown by the number of letters in Roman type, the following appearing to be adequate doses for the protection of albino rats from deficiency of the specific vitamin:—

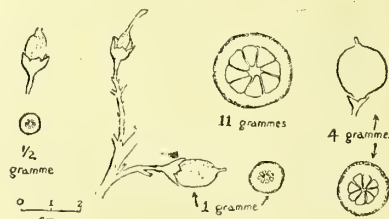


FIG. 1.—Lemons from one to six weeks old

(i) Vitamin A: Orange flavedo, ½ gm.; lemon flavedo, 1 gm.; fresh orange juice, 5 c.c. (ii) Vitamin B: Orange flavedo, 2.3 gm.; lemon flavedo or grape-fruit flavedo, 1 gm.; fresh orange juice, 7½ c.c. (or for guinea pigs, orange peel, 1 gm.; fresh orange or lemon juice, 1½ c.c.). The general rule seems to be for vitamin B to be concentrated mainly in the flavedo and vitamin C in the juice, while there is a marked difference in the vitamin A content of the three fruits. The amount of peroxidase

British Pharmaceutical Conference, 1927.

was smallest in the orange and largest in grape-fruit, or roughly, the reverse of vitamin A distribution. It is suggested that the stability of vitamin A in cod-liver oil and in milk powders may be dependent upon peroxide formation. The essential oils prepared by cold expression from the above three fruits have been examined for vitamin, but the experiments are far from being completed. The principal point of interest is that orange-rind oil is rich in vitamin A. Positive colour tests for

protect a guinea pig against scurvy, whilst 10 c.c. per diem is adequate for the vitamin A or B requirements of the rat.

Concentration of the juice at 40° C. under reduced pressure yields a product almost as active in vitamin C content as the total amount present in the fresh juice, but drying by the spray process does not appear to give a product equal to that obtained by concentration *in vacuo*. There is reason for believing that orange juice can be concentrated on a commercial scale without loss of vitamins A, B and C, and that the concentrate will keep well owing to its high sugar content, whilst the mineral salts present have been demonstrated to have a marked effect in aiding bone formation.

A comprehensive study of orange juice was begun by the author because it was thought desirable to secure data on fresh orange juice of known origin and composition. Ripe "Sunkist" navel oranges were used in preparing the material for experiment, precautions being taken against possible contamination of the juice by rind oil (which contains vitamin A). The juice was strained through muslin and then filtered through paper, the latter operation being somewhat tedious. The product was almost free from cell tissues, and on examination gave the results recorded in Table I:—

TABLE I

Total solids	..	..	..	..	12.08	per cent.
Reducing sugars (before hydrolysis)	..	..	..	..	5.30	" "
Reducing sugars (after hydrolysis)	..	..	..	..	10.85	" "
Protein (N. \times 6.25)	..	..	..	..	0.64	" "
Fat	..	..	..	..	0.44	" "
Ash	..	..	..	..	0.10	" "
Lovibond Tintometer Readings ($\frac{1}{2}$ in. cell)	..	..	..	..	39.5	yellow;
					5.8	red; and
					3.8	blue units
Reaction	..	..	..	..	PH 4.2—4.6	
Specific gravity	..	..	..	..	1.0509	
Peroxidase tests	..	..	..	..	Negative	

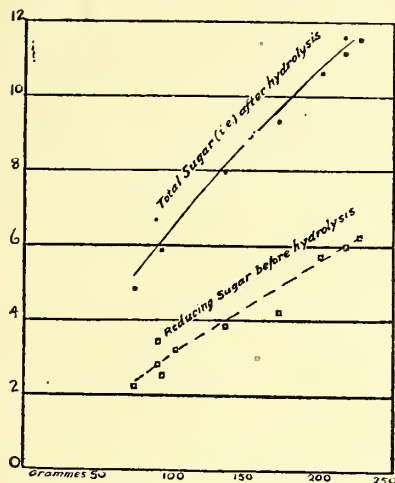


FIG. 2.—Reducing sugar in juice of Californian oranges during growth. (At side, percentage of sugar in juice.)

vitamin A were obtained after decolorising with "Norit." Supplies of immature oranges, lemons, and grape-fruits, transhipped from California in cold store, have been examined microscopically. In the case of the lemon the development of characteristic structures has been traced from small fruits weighing less than one gram to the fully ripe fruit of about 100 grams. The peel of this fruit attains its maximum thickness within the first few days of fruit formation, scarcely increasing in thickness during the remainder of its development extending over a year. (See Fig. 1.) This strongly supports a connection between the constituents of *Citrus* fruits and photosynthetic activity in the flavedo, which is at its height during the first few months, as chloroplasts predominate until the fruits are half grown. In the youngest lemons the reaction of the tissues is nearly neutral (PH 6.0), acidity developing in peel and juice until it has become practically constant when the fruit is half grown (with peel about PH 4.0, and juice of PH 2.5 to PH 2.2). While the differences in acidity of lemon peel and juice might be used to explain variations in vitamins, comparisons from oranges and grape-fruit show that other factors have also to be considered. Fig. 2 summarises data for reducing sugars in orange fruits of different ages from five months upwards, both before and after hydrolysis at 37° C. Further results are to be given later.

There was no discussion on this paper, but the chairman, in thanking Dr. Willmott, pointed out that the idea of oranges as diet was comparatively modern.

The next paper was:—

Less-Appreciated Constituents of Orange Juice

By S. G. WILLMOTT, PH.D., B.Sc., A.I.C.

[ABSTRACT]

THE juice of the orange is the most valuable of those from the four principal *Citrus* fruits, as it is the only one that can be given with safety to infants. Owing to its antiscorbutic activity, palatability, and ease of concentration, orange juice is finding wider applications in manufactured foods and in beverages. Recent investigations show that 1.5 c.c. of orange juice per day will

Feeding tests were conducted on inbred albino rats. In testing for vitamin A the animals were brought to the point where their natural reserves of vitamin A were exhausted, as evidenced by loss of weight and onset of xerophthalmia. After considerable preliminary work 5 c.c. of "Sunkist" orange juice was found adequate for resumption of normal growth and cure of xerophthalmia. This was confirmed conclusively by tests on twelve animals (including negative and positive controls) placed on vitamin A-free diet to which was added 5 c.c. of orange juice per head per day for a period of over five weeks. Confirmation of the presence of vitamin A was obtained by applying the tests with arsenic trichloride and with antimony trichloride. The reagent was added to a syrup (from juice evaporated *in vacuo*), taken up in chloroform, and pigment adsorbed on charcoal. The colour reactions were definitely, if not strongly, positive.

Experiments on vitamin B still in progress appear to indicate that the minimum curative dose of the orange juice in question necessary for supplying vitamin B to rats is probably about 7.5 c.c. per day. No appreciable amount of vitamin D was found in the orange juice investigated, though the formation by light might be expected in a fruit such as the orange. The method followed was a modified Zucker technique, depending upon the faecal reaction on feeding with rachitogenic and antirachitic diets. It was found that the strong acidity of the juice has little influence over the faecal reaction of the animals. A fourth series of experiments which are incomplete indicate that for rats a daily dose of 10 to 15 c.c. is sufficient to supply vitamins A, B and C.

The results are of importance inasmuch as orange juice in concentrated form is entering into the composition of various proprietary food preparations and because of its recommendation by medical authorities as a valuable and economic antiscorbutic. Orange juice has been administered with benefit in rickets, acidosis, influenza and diabetes, and its little understood efficacy may be due to its unique combination of essential food factors. Thanks are accorded to the California Fruit Growers' Exchange for the fruit used in the investigation.

British Pharmaceutical Conference, 1927.

DISCUSSION

Mr. WHATMOUGH remarked that it was necessary to keep a sense of proportion concerning vitamins; orange oil was, after all, only a flavouring, and there was a danger of reckless advertising of the presence of vitamins in various products.

Dr. WILLIMOTT, in reply, said that the presence of vitamin A in orange oil was of great scientific interest, and he believed that Mr. Whatmough's fears were ill-grounded.

The next paper, read by Mr. H. Brindle, was:—

Carbolic Acid Suppositories, B.P. 1914

By HARRY BRINDLE, B.Sc., A.I.C., Ph.C., and
L. H. BOARDMAN, Ph.C.

[ABSTRACT]

THE observation that carbolic acid suppositories set more readily the lower the temperature at which the carbolic acid has been added was followed up with the purpose of improving the B.P. process if possible. The B.P. 1914 method consists in melting the oil of theobroma, adding the carbolic acid, and then the wax, which does not melt until heated to near its melting point, i.e., 61° to 64° C. Details of experimental batches show that this method produces a mixture which requires some hours to harden. Suppositories kept at 16° C. were still pasty after three and a half hours. Carbolic acid suppositories made by adding phenol to theobroma oil just above its melting point set hard in fifteen minutes and remained hard at 28° C., a temperature at which other modes of mixing resulted in suppositories too soft to be usable. The addition of wax in the B.P. proportion did not show any advantage in retarding. It is concluded that the white beeswax in the B.P. formula is useless. Carbolic acid suppositories double the B.P. strength containing two grains (of phenol in each suppository) were also prepared. These were found to be better without wax, provided that the temperature is as low as possible when the phenol is added. If oil of theobroma be allowed to cool slowly it begins to lose its transparency at about 25°-26° C. This is a suitable temperature for the addition of phenol. At 22° C. the oil begins to solidify fairly rapidly, and the temperature rises to 26° or 28° C. No difficulty was experienced in dissolving the phenol in the oil of theobroma, even when the temperature was allowed to fall to 22°-23° C. before adding the phenol.

The following process is suggested:—

Phenol, 0.8 gm.

Oil of theobroma, a sufficient quantity for twelve suppositories.

Melt the oil of theobroma and powder the phenol; allow the oil of theobroma to cool, with constant stirring, until it shows signs of solidification by becoming less transparent; add the powdered phenol, stir until dissolved, and pour the melted mixture into suitable moulds.

There was no discussion. The chairman, in thanking the authors, referred to the communication as a practical one which would not be overlooked.

The next two papers, read by the author, were:—

Supplementary Notes on Official Astringent Drugs

By ALAN H. WARE, Ph.C.

[ABSTRACT]

ARISING out of the necessity for clearing up the botanical source of the red gum of commerce, the Director of the Botanical Museum of Sydney was asked to supply specimens from authenticated sources. Three kinos from *Eucalyptus rostrata*, *E. calophylla* and *Angophora lanceolata* were sent and are now described.

Kino from Eucalyptus rostrata.—This occurs in small grains or angular pieces, which are red and transparent internally and sometimes externally also. The greater part of the drug is soluble either in cold water or alcohol (90 per cent.). In aqueous solution it gives a green or blue-green colour-reaction to ferric chloride. This red gum forms a copious precipitate in the test with formaldehyde in feebly acidulated aqueous solution

(described at last year's Conference), this precipitate being insoluble in alcohol or aqueous alkali. Only a slight precipitate is given in the test with ammonium ferric citrate and ammonium chloride in the presence of acetic acid. The precipitate given on boiling an aqueous solution with a few drops of tincture of iodine, and cooling, is either entirely or mainly soluble in 10 per cent. solution of ammonia. A brown precipitate forms at once with lime water, and a negative or very poor response occurs with the deal shaving-hydrochloric acid test, as also for aromadendrin and for kino-yellow. An aqueous extract gives an insoluble precipitate with sufficient copper sulphate (in 2 per cent. aqueous solution) and excess of solution of ammonia (see below). No violet or blue colour-reaction occurs with Mitchell's reagent and acetic acid. (Some Australian kinos give a positive response to this test for tannic acid.)

Kino from Eucalyptus calophylla.—This sample agrees in all important respects with descriptions given to the Conference in 1925 and 1926, consisting mainly of reddish-black grains adherent to small pieces of bark or wood. It is evidently obtained from cavities in tree trunks. This specimen contains less matter soluble in cold water than those previously examined, and also yields less to ether. The ether extractive contains a considerable amount of aromadendrin, but very little of the catechin-like body giving the deal shaving-hydrochloric acid colour-reaction. Dr. Nierenstein considers that the substance giving this reaction may be a resorcinol derivative.

Kino from Angophora lanceolata.—This is a new red gum occurring in grains or masses of varying size. These are brown and opaque on the exterior, but rich, transparent, ruby red internally. The dust is brownish. This kino gives a blue green to ferric chloride, and contains a little gallitannin. It gives a markedly positive response to the tests for aromadendrin, whilst that for kino-yellow is also definitely positive, but there is a less good reaction with the deal shaving-hydrochloric acid test. The formaldehyde and iodine tests confirm the indication given by ferric chloride that the drug is mainly characterised by its phlobatannin content. The iodine precipitate is largely insoluble in aqueous alkali, but that given by copper sulphate is soluble in excess of solution of ammonia. A dull purplish colour is produced with lime water, but there is very little precipitate. In chemical characters this kino closely resembles that from *Eucalyptus Gunnii*, but is readily distinguished by the lime-water test and by its physical characters.

Eighteen authenticated kinos (sixteen of which are from different species of *Eucalyptus* or *Angophora*) have been examined, every one of which can be distinguished from one another by chemical methods. The red gum from *E. rostrata* is far superior to any other examined in suitability for pharmaceutical use, provided it be stabilised by destruction of oxydase. The results in the appended table were determined by Mr. C. J. Jordan, and are thus strictly comparable with the figures supplied last year. The data relate to red gum carefully freed from bark or wood. The solubility tests would favour red gum from *E. rostrata* still more if carried out with cold water, much of the matter dissolving in hot water not being tannin. The figures for red gum from *E. rostrata* show slightly more ash content but a little less residue insoluble in water than the previous figures.

Origin of red gum	Moisture	Solubility in alcohol	Solubility in hot water	Residue in-soluble in water	Ash
	Per cent.	Per cent.	Per cent.	Percent.	Per cent.
<i>E. rostrata</i> ..	12.85	80.77	87.05	0.1	0.56
<i>E. calophylla</i>	10.42	81.44	85.38	4.2	0.67
<i>Angophora lanceolata</i>	8.81	84.81	79.59	11.6	0.48

Extractives for test purposes are 1 of drug to 50 of distilled water. With gallitannin drugs the extractive

British Pharmaceutical Conference, 1927.

may be made by decocting for a few minutes, but for phlobatannin drugs digesting on a boiling water bath for half an hour is preferable. Catechus and kinos are best extracted with cold water (or with alcohol if so directed). In no case should the extractive show sufficient colour to mask the colour-reaction of the test. Very dilute extracts are used with the ferric chloride test, but much more latitude may be given with other tests. In the case of ferric citrate, formaldehyde, sulphuric acid, iodine, and deal shaving and hydrochloric acid tests, and also those for aromadendrin and hæmatoxylin, extractive should be definitely but not intensely coloured. Specific directions for tests are given as follows:—

Acidum Tannicum.—The ferrous tartrate test suggested for inclusion in the B.P. monograph should read:—

.05 gm. dissolved in 6 mls. of water, to which 10 drops of acetic acid has been added, gives with 5 mls. of freshly-made test solution of ferrous tartrate a deep violet or blue coloration if the mixture be heated to the boiling point and then cooled.

It is an open question as to whether B.P. tannin should be confined to Chinese galls or to Turkish galls. Dr. Nierenstein states that the gallotannin obtained from Turkish galls possesses an ellagic acid grouping in its molecule.

Catechu Pallidum.—The lime water test should be:—

1 gm. triturated with 25 mls. of cold water and the mixture filtered, yields a solution, 2 mls. of which added, with stirring, to 50 mls. of lime water, contained in a shallow dish, may give a turbidity after standing for five minutes, but should not show a definite precipitation.

Precipitation always occurs provided sufficient time is given, and the extractive is sufficiently strong. Many facts indicate the desirability of including a quantitative test for tannin. Hough (Collegium, London, 1915, p. 343), in describing the preparation of gambier by natives in Borneo, states that iron (not copper) pans are used, and adds that the extract after evaporation and straining is thickened by means of rice meal. Harvey ("Tanning Materials," 1921, pp. 28-29) states that gambier, free from added starch, is made now in factories under European control, both in British and Dutch Borneo. The analyses quoted show that starch containing gambier may contain nearly as much tannin as plantation gambier free from added starch. The "Pharmacopœia" in requiring that catechu should not show starch grains, does not preclude the absence of gelatinised starch.

Kino.—A more detailed description of the copper sulphate test is as follows:—

If to an extractive (1 in 50 of cold water) one drop of 10 per cent. solution of ammonia be added and then 1 per cent. of 2 per cent. solution of copper sulphate until the maximum degree of precipitation is obtained, the precipitate obtained is insoluble in excess of the solution of ammonia.

Unless the copper sulphate is added in sufficient quantity, all tannins give a precipitate soluble in excess of ammonia. The test as above affords a good means of distinguishing between many drugs. Most typical pyrogallotannins and many phlobatannins give a precipitate which is insoluble under the conditions named. Certain phlobatannin drugs give a precipitate which is soluble, amongst them being the catechus, the krameries and the kino from *Angophora lanceolata*.

Myrobalans.—The test for ellagitannin in detail is:—

If two or three crystals of sodium nitrite, each the size of a small pin's head, be added to a cold filtered decoction of myrobalans (1 in 50) and the mixture be heated, gradually, nearly to boiling point, a succession of colour changes may be given, but the final colour will be either green (generally) or blue (occasionally).

In the above test applied to black chebulic myrobalans (which are distinctly acid) the colour changes may be red, purple, violet, blue and green in succession, but the green is almost invariably attained if heating is gradual.

Thanks are accorded to the Director of the Botanical Museum at Sydney for specimens, and to Mr. C. J. Jordan for the quantitative results. The remainder of the experimental work was carried out by the writer in the laboratories of the Technical College, Plymouth.

The Detection of Carbolic Acid in Commercial Cresols

By ALAN H. WARE, Ph.C.

[ABSTRACT]

The B.P. test for the detection of carbolic acid in cresol is found by the author to be quite useless for its purpose. In four experiments identical results were obtained from:—(1) Commercial cresol containing a little carbolic acid; (2) the same admixed with 25 per cent. of carbolic acid; (3) synthetic cresol consisting of *o*-cresol 1, *m*-cresol 2, and *p*-cresol 2; (4) synthetic cresol containing 25 per cent. of phenol. It was found that separation into layers occurred most completely (without formation of a troublesome emulsion) if 5 mls. each of cresol and glycerin were mixed in a measure, and then adding the water (5 mls.) with gentle stirring with a glass rod. In all four experiments the volume of cresolic layer separating was 1.5 to 1 of cresol taken. It is clear that the test is useless for the detection of carbolic acid except in very large proportions (the actual amount detectable appearing to vary with different cresols). The following simple and rapid process has been devised for detecting carbolic acid in commercial cresol:—

(a) *Separation of "Carbolic Acid"*.—10 mls. of the "cresol" are shaken with 10 mls. of decinormal solution of potassium hydroxide. The mixture is then allowed to stand (or centrifuged to bring about the separation of excess of mixed phenols—commercial products differing considerably in emulsification tendency). The upper layer, containing most of the phenate, is removed. It is next shaken gently with ether to remove most of the uncombined phenol. The ethereal layer is rejected. Dilute sulphuric acid or hydrochloric acid is added to the lower aqueous layer to decompose the phenate. The liberated phenol is subsequently shaken out with ether. The ethereal layer is separated and the ether allowed to evaporate.

(b) *Application of the Specific Test ("Analyst," June 1927)*.—The crude separated phenol is shaken or stirred with 10 mls. of concentrated aqueous hydrochloric acid. (When large percentages of carbolic acid are present, it is necessary to run off by means of a separator the acid solution of phenol free from undissolved phenol.) The acid solution of phenol is then placed in a glass mortar, and a mixture of about 0.2 gm. each of potassium nitrate and sodium nitrite added and the whole well stirred. The mixture is then allowed to stand for from two to five minutes. The formation of definitely crimson or purplish-crimson colour indicates the presence of carbolic acid. This should be confirmed, after full development of colour, by diluting with a little water and pouring into excess of 10 per cent. aqueous ammonia. If carbolic acid be present in any very appreciable quantity, a deep emerald-green colour will be produced.

The above test gave satisfactory results with experiments carried out on mixtures of *o*-cresol, *m*-cresol and *p*-cresols (with and without the addition of carbolic acid). Fortunately *o*-cresol is not shaken out by alkali preferentially to the other cresols, or its colour-reaction might interfere with the detection of small quantities of carbolic acid. In the absence of carbolic acid only the non-distinctive reddish colour yielded by many phenols on treatment with nitrites is produced, which becomes brown on adding ammonia. The introduction of 1 per cent. of carbolic acid results in a marked response to the test. By reducing the quantity of alkali 0.5 per cent., or even less, of carbolic acid is readily detected. It is quite easy to fix any desirable limit by varying the proportions of cresol and alkali used, bearing in mind that the presence of cresol up to about 50 per cent. in the phenol actually shaken out will not prevent a very distinct indication of carbolic acid. The presence of carbolic acid in such mixtures is more readily detected by the colour-reaction given in the acid admixture than that on pouring into solution of ammonia. The experi-

British Pharmaceutical Conference, 1927.

mental work was carried out in the laboratories of the Technical College, Plymouth.

No discussion arose on these two papers. Mr. Ware was thanked by the chairman.

The next paper, read by Mr. Walmsley, was:—

Detection of Chlorides in Mercuric Oxide

By G. J. W. FERREY, B.Sc., A.I.C.

[ABSTRACT]

THE testing of mercuric oxide for chlorides is an important preliminary to its assay by the thiocyanate method used in the British Pharmacopœia, though the latter does not test for specific impurities (except for nitrate in red mercuric oxide). The author finds that the use of nitric acid in preparing solutions of mercuric oxide is quite untrustworthy for chloride testing. A solution of 1 gm. of mercuric oxide in 5 c.c. of nitric acid (s.g. 1.153) and 15 c.c. of water showed a faint turbidity, which was not increased on adding 2 c.c. of *N*/0.1 solution of silver nitrate. The addition of 2 drops of *N*/0.1 hydrochloric acid did not, surprisingly enough, lead to the formation of a precipitate. A transient turbidity occurred on adding a drop of normal hydrochloric acid, but several drops were required before a faint opalescence appeared. A series of tests were made in order to judge the sensitivity of silver chloride precipitation in the presence of mercury. Merck's yellow oxide of mercury (1 gm.) was dissolved in 5 c.c. of nitric acid of strength specified in Table I, and 15 c.c. of water added. Silver nitrate solution (2 c.c. of 0.1 or 0.3 normality as shown) was then added, and semi-normal hydrochloric acid run in drop by drop from a burette (with agitation to mix solutions) until a faint opalescence appeared. Addition of water (20 c.c.) caused the turbidity to disappear. The titration with semi-normal acid to permanent opalescence was also continued after the addition of successive 20-c.c. portions of water. Results were obtained as follows:—

TABLE I

Tests	Mercuric oxide taken	Nitric acid added	Water added	Silver nitrate used	Total volume of <i>N</i> /2 hydrochloric acid required				
					Original solution	Successive dilutions of 20 c.c.			
Series 1	1 gm.	5 c.c. (1-2)	+15c.c.	2 c.c. (<i>N</i> /0.1)	1.3	2.0	2.95	3.97	4.92
Series 2	1 gm.	5 c.c. (1-2)	+15c.c.	2 c.c. (<i>N</i> /0.3)	0.35	0.5	0.65	0.85	1.00
Series 3	1 gm.	5 c.c., s.g. 1.42	+15c.c.	2 c.c. (<i>N</i> /0.1)	1.4	2.1	3.0	4.05	5.05

The sensitiveness of the silver chloride reaction evidently depends upon the concentration of silver nitrate in the solution, and is practically independent of the concentration of nitric acid present. The addition of silver nitrate diminishes the solubility of silver chloride in aqueous solution of mercuric nitrate owing to the "common ion effect." An opalescence appears when the concentration exceeds a definite amount, but the silver chloride goes into solution again on reducing the silver ion concentration by adding water. With B.P. quantities chloride equivalent to one-tenth c.c. of *N*/0.1 hydrochloric acid leads to an error of 0.2 per cent. in assay of mercuric oxide by the thiocyanate method. Any useful test for chlorides should be sensitive, when taking 1 gm. of mercuric oxide, to one drop of *N*/0.1 hydrochloric acid. Table II shows that this is by no means the case with tests prescribed in the manuals on standards for reagent chemicals.

The remarkable insensitivity indicated by the figures in Table II is due to the solubility of silver chloride in mercury nitrate solution, and its precipitation on adding sodium or potassium acetate suggested that increased sensitivity would be gained by using acetic acid in place of nitric acid. With acetic acid a turbidity was produced by an amount of hydrochloric acid

TABLE II

Manual on testing of reagents	Mercuric oxide taken	Nitric acid added	Water added	Silver nitrate used	Hydrochloric acid required	Equivalent percentage of chloride
Merck	1 gm.	5c.c. (1-2)	+15c.c.	2 c.c. <i>N</i> /0.1	1.3 c.c. <i>N</i> /2	2.37
Merck	1 gm.	5c.c. (1-2)	+15c.c.	2 c.c. <i>N</i> /0.3	1.75 c.c. <i>N</i> /2	0.64
Krauch	1 gm.	0c.c. (1-2)	—	2 c.c. <i>N</i> /0.1	0.2 c.c. <i>N</i> /10	0.73
White	1 gm.	1 c.c., s.g. 1.42	+10c.c.	1 c.c. <i>N</i> /0.2	0.2 c.c. <i>N</i> /10	0.73

equivalent to about 0.04 per cent. of chloride, but the test is inconvenient and still hardly delicate enough. If the hydrochloric acid be added to the acid mercury solution *before* the silver nitrate solution, the test is still less sensitive, as local concentration of chloride ion is smaller than when the acid is added *after* the silver salt. Removal of mercury before testing for chloride was also investigated. Ashing is unsatisfactory, as chloride may be lost by volatilisation. Precipitation by sodium bicarbonate suffers from the difficulty of obtaining this salt quite free from chloride, so that a blank control would have to be titrated. Further, the precipitate of basic mercuric carbonate may adsorb traces of sodium chloride. Removal of mercury by precipitation as metal with zinc is finally recommended, the following revised test being proposed:—

One gm. of mercuric oxide is dissolved in 10 c.c. of 25 per cent. sulphuric acid and 10 c.c. water, with the aid of one or two drops of nitric acid. One gm. of zinc turnings is then added, and the mixture allowed to stand for about five minutes. The filtered solution should give not more than the faintest opalescence on the addition of a little nitric acid and 2 c.c. of *N*/0.1 AgNO_3 for each 10 c.c. of solution.

With this test a specimen of pharmaceutical yellow oxide gave a very decided turbidity on the addition of silver nitrate solution. Merck's yellow oxide (reagent quality) required the addition of one drop of *N*/0.05 hydrochloric acid to produce a turbidity. Traces of chlorides have been detected by this method in several specimens of pharmaceutical mercuric oxide. The admitted difficulty of obtaining theoretical results with B.P. assay of mercuric oxide may be due to undetected chloride, and this point is under investigation. With the revised test less than 0.02 per cent. of chloride (as HCl) can be readily detected.

The experimental work was carried out in the analytical laboratories of James Woolley, Sons & Co., Ltd., Manchester.

DISCUSSION

The CHAIRMAN remarked that the author's difficulty was new to him. He regarded this as a model paper.

Mr. WHITE said that the explanation of the difficulty perhaps lay in the peculiar behaviour of halogen salts in aqueous solution. It was interesting to know that in applying routine tests something had been overlooked.

Mr. A. J. JONES inquired whether the author associated chlorine content with variation in colour. A specimen of mercuric oxide that he had lately seen in a pharmacy had almost the appearance of burnt amber.

Mr. WALMSLEY, replying, regretted that the author was not present, and added that he had not noticed any great variation in colour.

The author and the reader of the paper were thanked by the chairman.

The last paper, presented in abstract by Mr. Evers, was:—

Spiritus Ætheris and Spiritus Chloroformi: Variation of Specific Gravity with the Proportions of Ingredients

By F. H. MILNER

[ABSTRACT]

THE experiments were carried out to ascertain if the specific gravity is a sufficiently comprehensive index of the composition of spiritus ætheris and spiritus chloroformi. The figures given show that this is a reliable indication of their respective compositions.

British Pharmaceutical Conference, 1927.

Spiritus Chloroformi.—Mixtures were made by measuring the amount of chloroform indicated by means of a graduated pipette and making up to the graduation mark in a 100 c.c. flask with rectified spirit adjusted to contain exactly 90 per cent. of absolute alcohol by volume. All measurements and specific gravity determinations were made at 15.5° C. The results are recorded in Table A.

TABLE A.—Specific Gravities of Chloroform-alcohol Mixtures

Percentage of chloroform	Actual specific gravity	Diff. for 0.5 per cent. of chloroform	Calculated specific gravity	Diff. for 0.5 per cent. of chloroform
2.5	0.8488	0.0033	0.8500	0.0033
3	0.8521	0.0032	0.8533	0.0033
5	0.8650	0.0032	0.8663	0.0033
6	0.8714	0.0033	0.8728	0.0033
7.5	0.8814	—	0.8826	—

Each additional 0.5 per cent. of chloroform raises the specific gravity by 0.0033. Although the specific gravities do not agree exactly with theory, it will be noticed that the difference per 0.5 per cent. of chloroform in the calculated specific gravities is the same as in those determined experimentally.

Spiritus Etheris.—Spirit of ether is officially directed to be prepared by mixing 500 millilitres of ether with 1,000 millilitres of alcohol (90 per cent.), the limits for specific gravity being given as 0.802-0.806. In determining the results below, the stated proportions were measured by burette, and the temperature maintained at 15.5° C during mixing and weighing.

TABLE B.—Specific Gravities of Ether-alcohol Mixtures

Mixture		Actual specific gravity	Difference for 10 per cent. difference of ether	Calculated specific gravity	Difference for 10 per cent. difference of ether
Ether. C.c.	Alcohol. C.c.				
20	80	0.8155	—	0.8109	—
30	70	0.8057	0.0098	0.7995	0.0114
33½	66½	0.8023	—	0.7960	—
40	60	0.7952	0.0105	0.7882	0.0113
50	50	0.7833	0.0119	0.7768	0.0114

Considerable contraction occurs on mixing ether and alcohol, the difference in specific gravity increasing for each successive 10 per cent. of ether. A second series in which a definite volume of ether was made up to a definite volume with alcohol showed a slightly more uniform difference, being 0.0095, 0.0097, and 0.0105 for successive 10 per cent. increments of ether between 20 and 50 per cent. volume in volume. The mean difference in specific gravity for 1 per cent. of ether can be taken as 0.001 without serious error for 10 per cent. either side of B.P. strength.

Assuming correct alcoholic strength, a determination of specific gravity affords an easy and rapid method of determining excess or deficiency of ether (or of chloroform) and of calculating the amount for adjustment. It is suggested that spirit chloroform should be made as directed in the B.P., 1885, in order to make the formulas for B.P. spirits uniform (by mixing definite volumes of the separate ingredients). It is also pointed out that specific gravity limits are given for only seven of the sixteen spirits official in the British Pharmacopoeia. The determinations were made in the laboratories of Allen & Hanburys, Ltd.

There was no discussion. The chairman acknowledged the indebtedness of the Section to Mr. Milner and Mr. Evers.

The following three papers were taken as read:—

Differentiation of Members of the Salmonella Group of Food Poisoning Bacilli

By FRANK WOKES, B.Sc., F.I.C., Ph.C., and JOSEPH H. IRWIN, B.Sc.

[ABSTRACT]

THE Salmonella group of food-poisoning bacilli is named after Salmon, who put forward a scheme for their classification. Its members are commonly found in the intestines of animals, and they exert varying degrees of toxic

action. The Colon bacillus produces little, if any, effect on ingestion, while typhoid infection has caused severe epidemics. The Salmonella organisms are all gram negative non-sporing bacilli whose morphological characteristics vary insufficiently to permit microscopical identification.

Serological tests, similar to the Widal agglutination reaction for typhoid, have been adapted for differentiating between types of infection. By using successive small doses of killed organisms the development of immunising "antibody" can be gradually increased until agglutination of the specific living bacillus occurs on dilution of the immune serum up to some 20,000 times or more. An immune serum of high titre has little agglutinative reaction on other organisms unless these are closely related, when they may react to a considerably lower titre, which, in general, is higher the closer the relationship.

Animal Tests.—Immune sera were prepared from fifteen different organisms classified as belonging to the Salmonella group. In each case a pure 24-hour culture (on slant agar) was emulsified with sterile saline solution under aseptic conditions. They were heated to 60° C. for one hour to kill non-sporing organisms and sterility checked by plating out. The opacity of the suspensions was made as even as possible. An injection of 1 c.c. of each of these sterile suspensions was made by Professor J. M. Beattie into a healthy adult rabbit. These were housed in separate cages, and did not appear to suffer discomfort. Weekly doses of increasing strength were given, and the rise in titre of blood serum followed by agglutination tests on drops of blood removed from the ears. After receiving ten doses the animals were chloroformed and the blood collected. The serum was separated and the titre of each determined against its specific organism with the results summarised in Table I. The macroscopic method of testing was employed, using special tubes with tapered ends to facilitate observation. By carrying out duplicate tests and averaging results the experimental error was kept within the region of 10 per cent.

TABLE I.—Agglutination Tests: Titres obtained with immune sera against the specific bacilli used to produce the sera.

Organism used to produce the immune serum	Titre (i.e., highest dilution in which serum agglutinated its specific bacillus)	Organism used to produce the immune serum	Titre (i.e., highest dilution in which serum agglutinated its specific bacillus)
B. Evans (large)	1,500	B. shuttleworth	10,000
B. Evans (small)	15,000	B. artrycke ..	26,000
B. Evans (very small)	6,250	B. psittacosis ..	15,000
B. Morgan ..	12,500	B. paratyphoid B (nutton)	5,000
B. enteritidis (Bainbridge)	4,000	B. paratyphoid B (Hirsch)	7,500
B. trifle ..	5,000	B. paratyphoid B (Seeley)	15,000
B. suipestifer ..	12,500	B. paratyphoid B (Newport) ..	16,000
B. paratyphoid B (Parker) ..	5,000		

The three varieties of *B. Evansii* were from the same case, but were examined separately, as they differed slightly in size. The various types of paratyphoid B bacillus were isolated from different poisoning cases, and varied in toxic action. The titre of each immune serum was then determined against the whole of the twenty other organisms. This necessitated some hundreds of experiments, each involving numerous determinations. This formed the crucial part of the investigation. Specially calibrated pipettes were used and all precautions taken to ensure accurate results. The results are summarised in a table. In order to obtain a basis for comparison, the figures for each serum is stated as a per cent. of the titre obtained with that serum against its specific bacillus. Thus *B. trifle* serum against *B. typhosus* was 3 per cent. of the specific titre, the latter (from Table I) being 5,000; therefore the actual titre of *B. trifle* serum against *B. typhosus* is 3 per cent. of 5,000, or 150.

British Pharmaceutical Conference, 1927.

This serological method furnishes a sensitive and accurate means of differentiation between food-poisoning organisms otherwise indistinguishable from one another. If the assumption be granted that nearness in agglutination titre corresponds with closeness in relationship, the authors provide a quantitative basis for the classification of these organisms. Serious objections to serological differentiation of food-poisoning bacilli is the time required for preparation of the specific immune serum, and the possibility that there are two types of antibodies developed on infection by a member of the *Salmonella* group, one truly specific and the other agglutinating a series of organisms.

Bio-chemical Tests.—Active broth cultures were made of each of the foregoing twenty organisms. A typical strain of *B. dysenteriae* was added to the list (although it had not been examined serologically) in order to obtain comparative data. The usual composition of the media was: Peptone, 1; sodium chloride, 0.5; carbohydrate (or alcohol or glucoside), 1; litmus solution, 10; distilled water to 100. The work being of a qualitative nature, pure peptone ("Bactopeptone") was employed as a source of nitrogen instead of ammonium salts as in Harden's quantitative estimations of fermentation products from carbohydrates. The reaction of each batch of medium was made faintly alkaline (PH 7.4 to 7.6), about 1 to 2 c.c. of dekanormal solution of sodium hydroxide being required for each litre. Attempts to use more sensitive indicators than litmus were found unsuitable for general application, and a method was eventually elaborated of ascertaining the final PH on a platinum loopful of culture medium. The final fermentation acidity is of importance in intestinal toxæmia. It has also decided bearings on sour milk therapy and a connection with vitamin-D deficiency. For these reasons the final PH was ascertained with greater accuracy than usual. The purity of the culture from each of the twenty-one organisms was checked by staining smears of cultures in broth and by agglutination tests. Fermentation tests on twenty-four different carbohydrates, alcohols and glucosides were made by adding a loopful of the active broth culture to test tubes containing the carbohydrate (etc.) medium and fitted with Durham tubes for the collection of gas. This involved the inoculation of over 500 culture tubes. Incubation was carried out at 37° C., and the maximum effect was usually attained on the second day. In a few cases action was delayed and maximum acid or gas production was postponed until the third or fourth day, but the

TABLE III.—Bio-chemical Reactions with Polysaccharides and Glucosides

	Poly-saccharides				Glucosides				Proteolytic tests		
	Raffinose	Inulin	Dextrin	Glycogen	Amygdalin	Salicin	Aesculin	Arbutin	Phloridzin (3)	Indole	Litmus Milk
<i>B. typhosus</i> ..	-	-	-	-	-	-	-	-	-	-	A -
<i>B. dysenteriae</i> ..	A -	-	-	-	-	-	-	-	-	-	A - (then alkaline)
<i>B. Evans</i> (large)	-	-	-	-	-	-	-	-	-	-	AC (then alkaline)
<i>B. Evans</i> (small)	-	-	-	-	-	-	-	-	-	-	AC (then alkaline)
<i>B. Evans</i> (v.small)	-	-	-	-	-	-	-	-	-	-	AC (then alkaline)
<i>B. Morgan</i> ..	-	-	-	-	-	-	-	-	-	+	A -
<i>B. enteritidis</i> ..	-	-	-	-	-	-	-	-	-	-	A - (then alkaline)
<i>B. trifle</i> ..	-	-	-	-	-	-	-	-	-	-	A - (then alkaline)
<i>B. suispestifer</i> ..	-	-	-	-	-	-	-	-	-	-	A -
<i>B.p.B. Parker</i> ..	-	-	-	-	-	-	-	-	-	-	A -
<i>B. Shuttleworth</i>	-	-	-	-	-	AG	AG	AG	-	+	A -
<i>B. aertrycke</i> ..	-	-	-	-	-	-	-	-	-	-	Alkaline
<i>B. psittacosis</i> ..	-	-	-	-	-	-	-	-	-	-	Alkaline
<i>B.p.B. mutton</i> ..	-	-	-	-	-	-	-	-	-	-	Alkaline
<i>B.p.B. Hirsch</i> ..	-	-	-	-	-	-	-	-	-	-	Alkaline
<i>B.p.B. Bainbridge</i> ..	-	-	AG	-	-	-	-	-	-	-	Alkaline
<i>B.p.B. Schott</i> ..	-	-	-	-	-	-	-	AG	-	-	Alkaline
<i>B.p.B. Seeley</i> ..	-	-	-	-	-	-	-	-	-	-	Alkaline
<i>B. paratyphoid A</i>	-	-	-	-	-	-	-	-	-	-	Acid (then alkaline)
<i>B.p.B. Oxford</i> ..	-	-	-	-	-	-	-	-	-	-	Alkaline
<i>B.p.B. Newport</i>	-	-	-	-	-	-	-	-	-	-	Acid (then alkaline)
<i>B. coli</i> ..	-	-	-	-	-	AG	AG	AG	-	+	AC

Notes.—The medium containing glycogen gave a permanent brown colour with iodine prior to inoculation, but after several days' culture much more iodine was needed to cause development of colour, indicating possible formation of unsaturated compounds. (2) Arbutin containing medium darkened after 4 days (due to liberation and subsequent oxidation of quinol). (3) Phloridzin medium did not give in any case a coloration with ferric chloride (absence of phloroglucin).

experiment was not discontinued until conditions had been constant for at least three days. Blank control experiments were run to ensure that changes were due to enzyme action, and not mere incubation effects. The results of the bio-chemical tests are summarised in

Tables II and III. Comparisons of serological tests and bio-chemical fermentations show in general parallel classification.

B. coli, at the bottom of the tables, gave fourteen positive reactions (not including indole production), and in all of these gas was also formed. *B. typhosus*, at the head of the table and furthest distant from *B. coli*, gave respectively nine and seven positives, all different from those given by *B. coli* in that no gas was found. Again, the three *B. Evansii* bacilli, serologically very closely related, differed only in two tests (arabinose and mannitol). *B. enteritidis* and *B. trifle*, two virulent organisms serologically similar, differed only in one bio-chemical test. The hexoses (with the exception of mannose) were found of little use in differentiation, better results being obtained with the pentoses and the 5- and 6-carbon alcohols. This is in agreement with the fact that the enzymes of yeast and other fungi generally ferment the 6-carbon sugars readily, but have little if any action on the 5-carbon sugars. On the other hand, the disaccharides, sucrose and maltose, showed a number of different results, and seem likely to be of some service for purposes of classification. The four polysaccharides tested were scarcely affected by any of the *Salmonella* group of bacilli. Arbutin, recommended as a means of distinguishing between *B. tuberculosis*, *B. dysenteriae* and *B. cholera*, gave the best

TABLE II.—Bio-chemical Reactions, with Simple Sugars and Alcohols

	—			Pentoses		6-carbon alcohols			Hexoses				Disaccharides		
	Glycerol	Erythritol	Adonitol	Arabinose	Xylose	Sorbitol	Mannitol	Dulcitol	Fructose	Glucose	Mannose	Galactose	Sucrose	Maltose	Lactose
B. typhosus ..	-	-	-	A-	A-	A-	A-	-	A-	A-	A-	A-	-	-	-
B. dysenteriae	-	-	-	AG	AG	-	AG	-	AG	AG	-	AG	AG	-	-
B. Evans (large)	-	-	-	AG	AG	-	AG	-	AG	AG	-	AG	AG	-	-
B. Evans (small)	-	-	-	AG	AG	-	AG	-	AG	AG	-	AG	AG	-	-
B. Evans (v. small)	-	-	-	-	AG	-	-	-	AG	AG	-	AG	AG	-	-
B. Morgan ...	-	-	-	-	-	-	-	-	AG	AG	-	AG	AG	-	-
B. enteritidis	-	-	-	A-	AG	AG	AG	AG	AG	AG	AG*	AG	AG	-	AG
B. trifle ..	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B. suispestifer	-	-	-	-	A-	AG	AG	AG	AG	AG	A-	A-	A-	-	AG
B.p.B. Parker	AG*	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
B. Shuttleworth	-	-	AG	AG	AG	-	AG	AG	AG	AG	AG	AG	AG	AG	AG
B. aertrycke...	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B. psittacosis	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. mutton	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. Hirsch	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. Bainbr.	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. Schott	AG*	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. Seeley	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
Para A	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. Oxford	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B.p.B. Newport	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG
B. coli	-	-	-	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	-	AG

A: Signifies production of acid only. AG: Signifies production of acid and gas.
* Action delayed several days.

British Pharmaceutical Conference, 1927.

results of the five glucosides tested. Indole tests (using Ehrlich's rosindol solutions) and litmus milk cultivations were also carried out to ascertain the action of the bacilli on protein and peptone. In a number of cases, especially with the more virulent organisms, decomposition of the protein took place. Indebtedness is expressed to Professor J. M. Beattie, in whose laboratory this work was carried out.

A New Method of Locating the End-Point in Alkaloidal Titrations

By C. MORTON, B.Sc., Ph.C.

[ABSTRACT]

THIS paper describes a simple device by means of which the equivalence point may be determined electrometrically without the use of a potentiometer. The mode of operation of the device (shown in Fig. 1) is as follows:—

The E.M.F. to be measured is applied to the grid of a three-electrode valve. With the filament of the valve glowing, the switch set to Position 1, and the component of the normal anode current flowing through, the galvanometer is balanced out by adjustment of the resistance R_3 . By throwing the switch over to Position 2, the cell C (whose E.M.F. is to be determined) becomes included in the grid-filament circuit. The resistance R_4 is adjusted so that the galvanometer remains undeflected. An increment of 0.05 c.c.m. of reagent added. The resulting deflection D of the galvanometer is noted, and the deflection is then balanced out. These operations are repeated after the addition of each equal increment of reagent. From time to time the switch is thrown over to Position 1 to ensure that no change in battery voltages or valve characteristics has taken place.

The end-point of the titration may be assumed to lie midway between the two points at which the greatest deflections are registered.

Alternatively, if the deflection values (D) be plotted against the corresponding total volume (V) of reagent added, the end-point is indicated by the appearance of a sharp maximum in the course of the curve. The neutralisation curve can be determined by inclusion of a millivoltmeter in the circuit; the reading of this instrument gives directly the voltage (E) of the cell at each stage. The neutralisation curve is then obtained by plotting E against corresponding values of V. The underlying principle is the fact that the anode current of

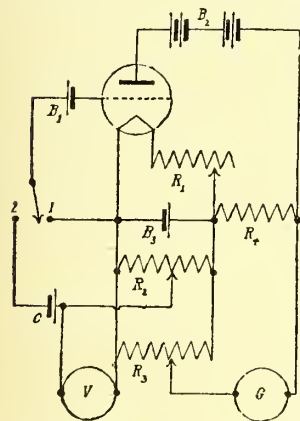


FIG. 1

the thermionic valve is a linear function of the grid voltage under certain conditions of grid and anode voltage and of filament temperature. Appreciable deflections are obtained with increments of only 1/100 c.c.m. of reagent, since advantage is taken of the amplifying properties of the valve precipitation reactions. The method is applicable to neutralisation reactions in general, including oxidation. The curves given in Fig. 3 were obtained by hydrogen electrode titrations of a commercial sample of the pharmacopœial dilute phosphoric acid, and serve to illustrate the use of the apparatus.

The ratios K_1/K_2 and K_2/K_3 for phosphoric acid are of the same order as the ratio K_b/K_w for the weaker titratable alkalis, and the end points are therefore of similar character. A is the neutralisation curve of the sample, and A¹ the corresponding differential curve (obtained by plotting, at each stage in the neutralisation, the deflection D produced by the addition

of an increment of 0.05 c.c. of the 0.992M NaOH used against the total volume of alkali added). From the position of the sharp maxima 1 and 2 (corresponding to the formation of NaH_2PO_4 and Na_2HPO_4 respectively), the concentration of the sample is calculated to be 1.0218M. Curves B and B¹ were obtained by titrating 5.44 c.c.m. of the acid in the presence of 10 c.c.m. of 25 per cent. NaCl solution (i.e., by the pharmacopœial method). Owing to the influence of the neutral salt on the ionisation of the acid, the neutralisation curve is on a higher level of acidity throughout,

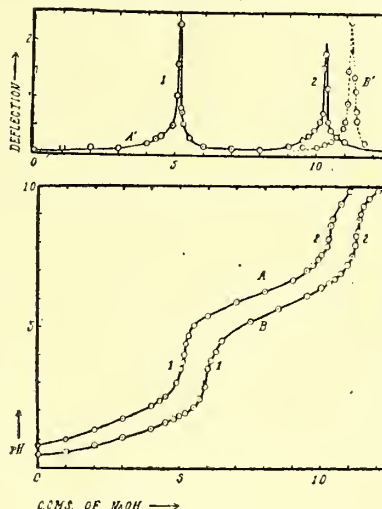


FIG. 2

and the differential curve B¹ shows that the second inflection point becomes somewhat more sharply defined in the presence of the salt. The author expresses indebtedness to Dr. J. C. Crocker, Principal of the Chelsea School of Pharmacy, for the provision of facilities for the work. A grant from the Dixon fund of the University of London is also acknowledged.

Tea Seed Oil as an Adulterant of Olive Oil

By H. A. CAULKIN, B.Sc., F.I.C.

[ABSTRACT]

A TEST for the presence of tea seed oil was proposed by J. Cofman-Nicoresti in 1920 (The CHEMIST AND DRUGGIST, February 28 and March 20, 1920) and embodied in the B.P. Codex of 1923. As no sample of olive oil examined was found to respond to the test, and in view of the original statement that "much of the olive oil on the market is grossly adulterated with tea seed oil," it was thought desirable to investigate the matter more fully. Tea seed oil is derived from several sources. Chinese oil is expressed from the seeds of *Camellia theifera*, and also of *Thea Sasanqua*. Assam and Japanese oils are derived from the seeds of *Thea Japonica*. All the oils agree very closely with one another. An authentic sample of Chinese tea oil was kindly supplied from the Imperial Institute, and samples of oil were prepared by expression and solvent extraction from a small consignment of Chinese tea seeds. A detailed physical and chemical examination gave the results shown on the following page.

Comparison of these figures shows at once that it would be quite impossible to detect even gross adulteration of olive oil by tea seed oil. The only constant showing any appreciable difference in the two oils is the melting-point of the fatty acids. The melting-point of the fatty acids isolated from a mixture of olive oil and tea seed oil, containing 20 per cent. of the latter oil, was 23° C., a figure well within the limits for a genuine olive oil. A further examination of the fatty acids of the seed oil showed the presence of about 6 per cent. of linolic acid (approximately the same as is

British Pharmaceutical Conference, 1927.

ANALYSES OF TEA SEED OILS

—	A.	B.	C.*	D.	Constants for Olive Oil
Specific gravity 15° C. ..	0.917	0.917	0.917	0.918	0.915-0.918
15° C. ..					
Saponification value ..	190.7	192.1	190.3	189.6	185-196
Iodine value ..	85.9	82.4	81.9	83.5	77-92
Unsaturation ..	0.66	0.90	—	0.42	—
				Per cent.	
Refractive index at 40° C. ..	1.4605	1.4625	1.4572	1.4610	1.4605- 1.4635
Reichert-Meissl value ..	0.22	—	—	—	—
FATTY ACIDS					
Neutralisation value ..	195.1	198.9	195.2	195.0	193-205
Iodine value ..	87.1	86.8	84.3	89.6	83-92
Melting point ..	10.5° C.	10.0° C.	10.5° C.	10.0° C.	17° C.-28° C.
Refractive index at 40° C. ..	1.4535	1.4530	1.4532	1.4533	1.454-1.458
LIQUID FATTY ACIDS					
Neutralisation value ..	193.5	193.7	186.0	192.0	—
Iodine value ..	101.9	92.8	89.1	99.9	92-103.5
Refractive index at 40° C. ..	1.4500	1.4540	1.4544	1.4523	—

* Sample C had the abnormally high acid value of 59.0.

present in olive oil). Stearic acid, arachidic acid, and linolenic acid were absent, and no constituent that could be found that was not present in the fatty acids of olive oil.

Colour Tests were found to be quite unreliable. The Cofman-Nicoresti test consists in shaking 10 c.c. of the suspected oil with 10 c.c. of a mixture containing equal parts by weight of concentrated sulphuric acid, concentrated nitric acid, and distilled water, the test-tube then being placed in boiling water for twenty minutes. A cherry-red or pink colour is stated to be produced by the presence of 20 per cent. (or more) of tea seed oil, whilst the adulterated oil is liquid or semi-solid on cooling, whereas pure olive oil sets to a yellow or nearly white mass. None of the commercial "refined tea seed oils" examined gave any suggestion of pink colour even when applied to the undiluted sample. A mixture of 80 per cent. of olive oil and 20 per cent. of expressed crude oil gave a not very pronounced orange colour. A reddish-brown was produced in a similar mixture containing extracted crude oil. No satisfactory conclusions could be drawn from the behaviour on cooling, some undoubtedly genuine olive not solidifying completely. Tests proposed by Dyobowski and Milia ("Inter. Rev. Sci. Agric.," 1921, Vol. II, p. 1193) and Blin ("Chem. Abstr.," 1922, p. 1019) on similar lines were also quite inconclusive on refining the crude tea seed oil. A dirty brown colour was obtained with sulphuric acid instead of indigo-blue (changing to greenish-brown on stirring) as described by Urchida ("J. Soc. Chem. Ind.," 1916, Vol. 35, p. 1089). The investigation shows that it is impossible to ascertain whether olive oil is adulterated with tea seed oil either by consideration of available chemical and physical constants or by means of colour tests. All the tea seed oils, whether crude or refined, had a somewhat pronounced and unpleasant odour and a disagreeable acrid taste. Both taste and odour were quite apparent in a high-grade olive oil admixed with 20 per cent. of tea seed oil, and such a mixture would certainly not be accepted as "edible oil." It is pointed out that the fact that tea seed oil is not found in quantity on the English market is not any guarantee that sophistication of olive does not take place before entry into this country. This research was carried out in the laboratories of Southall Brothers and Barclay, Ltd., Birmingham, Mr. F. C. Rawstron doing part of the experimental work.

This concluded the proceedings of the Science Section.

Delegates' Meeting—Tuesday Afternoon

The delegates from branches of the Pharmaceutical Society met in the Pavilion on Tuesday afternoon, the President (Mr. Herbert Skinner) in the chair. The proceedings opened with the reading of a paper by Dr. J. H. Burn, entitled:—

The Training of Pharmacists, with Particular Reference to their Future Position in the Health Service of the Country

[ABSTRACT]

Let me first consider the pharmacist's present position. You are conscious, of course, that the pharmacist's position has greatly changed. You are aware to what extent the dispensing of medicines has ceased to occupy the whole of your time, and to what extent you have become merely retailers of the preparations of manufacturing chemists. You are able to earn your livelihood, and at the same time to render very considerable services to the community. It is not to the doctor that many go for advice about their minor ailments. What is there, then, in the present position which calls for comment? What is unsatisfactory? I want to suggest, not that the services rendered by the pharmacist at present are not very great, but that there is a work for the pharmacist to do which I believe he alone can do, which would very materially benefit the health of the people throughout the country.

You are aware that during the last thirty years there has been a great development of the methods of discovering the nature of disease and of curing disease. But you are also aware that in many ways the practice of the general practitioner has not been altered to any great extent, and that the benefits of the medical discoveries have in the main not been made available to the public. Each new discovery has involved a new technical method. These methods are now so numerous that it is impossible to teach them to the medical student while he is taking his course. Further, they take so much time that the general practitioner cannot apply them. The general result is that at the present time the only people who receive adequate medical treatment are those among the needy poor who gain admission to our hospitals, while the rest of the community, including the rich as well as those of moderate means, receive not a second- but a third-rate service. Is there not here an opening for the pharmacist? All these examinations depend on the performance of tests which offer no more difficulties than do such chemical processes as the pharmacist at present learns. If they are to be carried out so as to be of value they demand, nevertheless, a very thorough training. Now the suggestion to train the pharmacist in these methods is no new one. So long ago as 1918 the Society appointed its Ministry of Health Committee to consider this matter, and in 1920 it presented a very able report. But the question then was that of training pharmacists to assist in the laboratories which the report of the Consultative Council proposed should be erected in the primary and secondary health centres to be established throughout the country. No more has been heard of the report of the Consultative Council, and I imagine that in the present condition of the national finances no more is likely to be heard for a very considerable time. Moreover, the prospect which was then offered to the pharmacist trained in these new methods was not one that seems to me very attractive. It was a question of becoming a subordinate assistant in a laboratory of which a medical man would have the control. I think there is a tendency among those who are responsible for medical education and for the development of medical service to ignore the pharmacist as a factor in that service. This is perhaps illustrated by the reference to pharmacists in the report of the Consultative Council, where it is stated to be "a matter for consideration" whether the pharmacist *could* be employed also as a laboratory assistant. The development of wholesale pharmacy has taken away much of the skilled work of the individual pharmacist, and no effort has been made to train him in those new methods which

British Pharmaceutical Conference, 1927.

could maintain and increase his professional position. It must be recognised at once that the main reason for the lack of change in the pharmacist's training is to be found in the state of the British Pharmacopœia. That Pharmacopœia is, as you are well aware, notoriously out of date, yet it has been allowed to control the pharmacist's training. But in addition to the Pharmacopœia, there is a new legal instrument governing the sale of medicines which will be in force in two months' time, namely, the Therapeutic Substances Act. Its introduction has caught pharmaceutical training entirely unawares. So far as vaccines, serums, insulin, salvarsan, and pituitary extract are concerned, the pharmacist who has passed the Society's examinations is a wholly untrained man; he will have no relation to these products save that of a retailer. Since these substances have now legal standards just as much as anything which has a place in the Pharmacopœia, surely the dispensing of them ought to be an integral part of the pharmacist's training. A doctor should be able to take a medium infected with pus drawn from a tonsil or a tooth socket into any pharmacist's shop and say, "Please prepare me a vaccine from the organisms present."

COURSES AND CONDITIONS OF TRAINING

In the first place, the institution of courses in bacteriology and pathological chemistry need involve no serious expenditure in apparatus. Bacteriology can be carried out in any well-equipped botanical laboratory and pathological chemistry in a chemical laboratory. A question which may seem more difficult is that of the student's time. If these courses were started as voluntary courses it would mean, in the absence of modification of the existing time-table, considerable extra work, for it would be very important that the work should be done thoroughly. It would seem highly desirable for those students who took such voluntary courses that portions of the existing syllabus should be curtailed. In my view the aim of these courses should be to give the students a thorough training in a few methods rather than a smattering of many. I would recommend that there be taught, for example:—(1) The performance of sterility tests; (2) the preparation of vaccines; (3) the examination of throat swabs for the diphtheria bacillus; (4) the examination of sputum for the tubercle bacillus. In pathological chemistry there should be taught:—(1) The estimation of sugar in blood and urine; (2) the estimation of urea in urine for kidney function tests; (3) the examination of urine for albumen, acetone, red cells, and casts; (4) the examination of stomach test meals; (5) the enumeration of the red and white cells in blood and determination of the hæmoglobin concentration. Further, the use of x-ray apparatus for bones, teeth, and bismuth meals should be taught. I am confident that those so trained would find their own openings. They could run a small testing department in connection with an ordinary retail business, for apart from the x-ray apparatus the capital required is small. It would be for the pharmacist to develop his own connection with the medical men in his neighbourhood, and for this purpose it seems to me that it would be valuable for the Society to issue a Diploma in Pathological Methods to those sufficiently well trained.

It is because of what I have seen during eighteen months at Bloomsbury Square that I take the responsibility of recommending these changes, for I am convinced you have a sufficiently high quality of men to carry out such work with success. Developments in the pharmacist's training would be opposed by some doctors, and perhaps by some public analysts who might imagine that their own particular field was being invaded. They need have no fear. What is suggested is that the pharmacist should provide a service which at the present time is provided by no one. But, of course, it may quite rightly be said that pathological chemistry and x-ray work is not the pharmacist's business, because it is not the dispensing of medicines. This I consider is a narrow view. I hope that schools of pharmacy in different parts of the country will face this problem. It has all the usual features of problems in that it will require hard

work, careful organisation, and be certain of arousing opposition; but it has unusual ones in that its successful solution would place pharmacy in a position much above that which it occupies to-day, and it would be of very great service to the people of this country. The pharmacist and the doctor are two individuals who depend upon one another.

Discussion

The PRESIDENT, in inviting discussion, remarked that the difficulty with which Dr. Burn had come into contact was not entirely a new one.

Mr. A. W. NUNN (Colchester) said that many of them had endeavoured to improve their position and education in order to obtain the confidence of medical men, who, however, still seemed to look at them as interfering and inadequate. He recalled that about eighteen years ago eight or ten of them met and took upon themselves to go through a course of bacteriology with the object of benefiting themselves and to show the doctors they could do such work as Dr. Burn had suggested. On getting their certificates they approached the Council with the object of getting permission to take a post-graduate course so that they could have a certificate that they were able to undertake the analysis of waters, milk, wine, sputums, etc. Now they were just waking up at last, and they would probably hear repeated the statement that the Society had not in times past backed up its higher qualified chemists who had wished and yearned to get on with the work indicated by Dr. Burn. On every occasion the Society had been approached it had condemned the idea. Yet there were still a lot who would like to go forward with post-graduate training.

Mr. J. GRIER (Manchester) asked what was the practical outcome of such training, and wanted to know whether it led to any real issue.

Mr. NUNN replied that he did about two hundred water analyses a year, and also a great many of milk.

Mr. STAINER (Folkestone) said that the paper had roused in him some of the enthusiasm of his youth. It must be thirty-five years since he wrote a paper in *THE CHEMIST AND DRUGGIST* on pathology for pharmacists. He had lived during that time making some little effort to do the things Dr. Burn had cited. The hopes for pharmacy which he held in those far-off days had been dashed considerably by the fact that the prediction that pharmacy would perform these functions had not matured. He did a considerable amount of work years ago in analysis, but he must confess that instead of increasing it had fallen off. The reason was that the requirements for such work had passed away. For example, he used to do the municipal examinations of swabs for diphtheria; but the authorities had long ago set up a laboratory at Maidstone, and such examinations were now carried on by the municipality free of cost to medical practitioners. In the early days of the x-ray he had set up a plant, and he did all the work for the hospital free, putting his hand into his own pocket to pay for the plates; in time, however, it became necessary to put the apparatus in the hospital, and last week a donor had contributed £1,000 for additional plant. Medical men at the institution thought it was essential that a medical man should be in charge, and it was now in the hands of a doctor. If a man outside the medical profession did such work, and anything went wrong, he was penalised, and every effort was being made by medical men to get it into their own hands. With regard to vaccines, he also had attended King's College Hospital and taken a course of instruction in bacteriology so as to bring himself up to the standard. But he had found that the preparation of blood vaccines was not an everyday affair. If one was brought once a week to a man it was about as much as could be hoped for. He had dropped the manufacture of vaccines himself, and directly he had one brought to him he sent it to a son-in-law, who was a pathologist. A man who was continually doing such work had greater facility than one who was doing it as a side-line. He hoped, however,

British Pharmaceutical Conference, 1927.

that the future of pharmacy would be much on the lines predicted by Dr. Burn.

Mr. D. G. MACKENZIE (Glasgow) told the Conference that twenty years ago he met one of those rarities, a medical man who was a scientist first and a medical man afterwards, and he had made a practice of preparing vaccines and things like that. But this had been purely a labour of love, both on the part of the medical man and himself. Another medical man had come along and wanted some microphotographs prepared for a lecture on tuberculosis. It was suggested that pharmacists should occupy their spare time doing the important work outlined by Dr. Burn; but he and others had found that as long as they were considered in the light of doctors' labourers it was impossible to arouse any enthusiasm in the members of the medical profession regarding their skill or ability. He was convinced that pharmacists could do such work as Dr. Burn had suggested. As long as they did it for nothing they would get plenty to do, but when they wanted anything for it it was a different story.

Mr. J. HIRST (Scarborough) said it was pharmacists' own fault if they lost their dispensing. In his town the corporation carried out all the swab business. He did not think there was room for more than one chemist to do the work under discussion for every 50,000 population, and he could not see every chemist in a town taking it up.

Mr. H. B. MACKIE (Brighton) pointed out that so far as he knew the subjects mentioned by Dr. Burn formed no part of a chemist's training. The whole of the Society's educational syllabus would need revising from its foundation if such matters were to be included.

Mr. LINSTED (secretary and registrar of the Society) said that one important question was: what was the pharmacist's function in relation to the community? He thought it was to be able to provide any medicinal or remedial agent that might be required by a medical practitioner. It seemed to him that at present the pharmacist was not in a position to do the work suggested by Dr. Burn. He not only had not the facilities, but he also had not had the training. Referring to the establishment of the Institute of Chemistry, he declared that it would have been possible for the Society to extend their Major syllabus so as to take up a great deal of the work that was now done by the Institute. If pharmacists did not take up the work of which Dr. Burn had spoken, other people would be found to do it. He reminded the Conference that the Therapeutic Substances Act had been passed with only the slenderest recognition being given to the pharmacist. That was a very serious milestone in the history of pharmacy in this country, he considered. The London University had got their degree settled and the Society their new Major, but there were many other universities. What they could consider was the setting up of some sort of post-graduate course in this work, not necessarily in London, but in provincial centres, with the Society offering a diploma. The reason for non-success in the past was that efforts had been isolated, and it would be better if they got the backing of the Society in anything they did. He did not think there was any reason to complain because public authorities took the work away from the retail pharmacist. Somebody had to do it, and it was given to the doctor because he was a man who had been trained in it. There was no reason why the pharmacist should not do the work if he was trained for it.

Mr. F. WOKES (Liverpool) pointed out that some time ago resolutions had been sent by a number of branches to the Council asking that facilities might be given for those who wished to take bio-chemical training in place of something else in the Major examination. Unfortunately, however, nothing was done, and the resolutions were not even discussed. He supposed that if anything came of Mr. Linstead's suggestions it would mean a post-graduate course, and consist of three years for ordinary work and one year for special training. The question was a big one. Was a man going to get an adequate return? His own experience was that at present

there was not a sufficient demand for the work under discussion. In the Liverpool district, for instance, medical men could get the work done for them free. He suggested that pharmacists would be up against municipal authorities and also universities which ran laboratories. Still, he thought it was worth while for pharmacy as a whole to go forward.

Mr. H. BAGSHAW (Oldham) referred to the point as to the amount of work that was likely to be available, and mentioned that he was on the board of governors of a hospital with 150 beds. They had a full-time pathologist at a not very attractive salary, but the weekly report showed that there were about twenty specimens—fifteen from the theatres and wards and five from the private cases. He believed the Manchester University had an arrangement with the Corporation by which the medical officer's samples were sent to Manchester. The only advantage of having a man on the spot was the quickness with which the examinations could be carried out. His experience was that there would be little general work for pharmacists as a whole, and the subject was really only one in which a few could specialise.

Dr. E. G. BRYANT (Aberdeen) expressed the view that the only people who could train for this kind of work were in the universities; and it was a question, not only of that branch of training, but also whether the whole of the training should be under the auspices of the universities. Another conclusion he had come to was that now was the time to alter the proposals with regard to the pharmaceutical chemist's qualification. They were still waiting for the pledge given by a past-President in 1925 to be redeemed, namely, that the proposals in connection with the syllabus should be reviewed by 1928. Some members felt that the proposals on the present lines were altogether unacceptable and inadequate. He thought they might set up the post-graduate course in the subjects proposed at that meeting.

Mr. S. C. GREAVES (Chesterfield) pointed out that two points had been raised by the discussion. One speaker had said that work on the lines suggested should be a regular job, but had mentioned that to prepare one vaccine a week was no good. The Scarborough delegate had stated that one chemist was enough for a population of 50,000. He thought these two points were worthy of every consideration.

Mr. E. S. PECK (Cambridge) congratulated the meeting on having had the benefit of Dr. Burn's criticism of the work of the Education Committee of the Society, but thought that Dr. Burn was perhaps hard when he said they were "deep-rooted in an obsolescent rut." He pointed out that in the schools and institutions which they had approved in collaboration with the London University they had suggested that they should get into touch with the bacteriological department of the University. He did not think the matter ought to be allowed to rest where it was. That meeting should carry it one step forward and agree that the matter should be referred to the Council with the request that the latter should set up a committee to take some action. They must give the London University scheme a chance of working before they did anything strong in the matter. But any other university in the country which thought itself competent, and was willing to institute a degree on the lines outlined more or less by Dr. Burn, if it was satisfactory in other degrees should be allowed to take its place with London University. He hoped some definite step would be taken at that meeting.

The PRESIDENT said he did not want a resolution. A full report of the discussion, however, would be placed before the Council, and it would be for the latter to take what action they thought proper. What had been said would gather greater weight in that way. The main thing was that the subject should be discussed by the Council after the delegates had discussed it.

Mr. J. GRIER (Manchester) said that they had a degree in Manchester, and as long as students put in the number of hours laid down they could add anything else they liked. They in Manchester would be very glad to assist the Society and the Council in the matter.

Mr. WHITE (London) referred to his address at Bath three years ago, when he threw out a suggestion very

British Pharmaceutical Conference, 1927.

much on the lines of Dr. Burn's. Arising out of the position created at Bath, the Council instituted the Pharmacological Laboratories at Bloomsbury Square. They felt that unless the Society took a strong hand in leading this movement they could not expect pharmacists to do the work in future. He thought the step was a wise one, if only to get Dr. Burn's advice. At present the pharmacist was not fit to do this work, and the question was whether they were going to make him fit. While biological and bacteriological science were well advanced, all general practitioners did not use them, for they were still interested in the old drugs, just as were the chemists. But the day was coming when drug consumption would be a declining one. He suggested that the scheme was too big and too nebulous for that meeting to come to definite decision regarding it that day, but if the delegates so decided there was no reason why the Council should not consider a scheme, particularly now that they had the presence of Dr. Burn on the spot.

Dr. BURN, replying to the discussion, referred to the pharmacists who had done the kind of work he had outlined and had not been paid for it. The reason for this, he thought, was that they had not been trained for it. If, however, they could say they had a diploma, and could send to their local medical men a list of charges, the matter would be put on a different footing. He quite agreed that at the present time there was very little of the work he had outlined, but it was often because a doctor did not know of anyone competent to undertake it. There would have to be an expansion, for there were large areas of the country for which municipal laboratories could not provide.

The PRESIDENT said the reason why no work was available was that nobody had been trained for it. Pioneering pharmacists would have to do the work for nothing. In hospital work he had for years had to experiment in order that he might be able to do certain work that came from the bacteriological and pathological departments, but there had been no proper training. When x-ray work was introduced, the doctor was in no better position than the chemist. The general practitioner was usually ignorant of the special work under discussion, and consequently went to a medical man who had been doing it. Medical men and public authorities would never admit pharmacists to the work until it was organised as a study and a training, and there was a diploma attached to it. He had had thirty-five years' experience of hospital work, and knew why certain work had passed him. He proposed a vote of thanks to Dr. Burn, adding that the doctor's work would come to fruition.

Dr. Burn's acknowledgment ended the meeting.

Closing Session

The closing session was held in the Music Room of the Pavilion on Wednesday afternoon, the chairman of the Conference presiding.

EXECUTIVE COMMITTEE'S REPORT

Mr. C. H. HAMPSHIRE (senior general secretary) read the annual report of the Executive Committee. The following is a summary:—

Membership of the Conference now consists of members, honorary members and student-associates of the Pharmaceutical Society, together with twenty foreign and Colonial corresponding members and ninety homo corresponding members. Following the resignation of Mr. Finmore from the Science Committee of the Pharmaceutical Society, Mr. H. B. Mackie was appointed.

The Harrison Memorial subcommittee noted with regret the small number of entries which were submitted for the Harrison Memorial medal. It appeared evident that a larger number of entries could not be expected in the future, and the subcommittee went carefully into the question of devising some other means of perpetuating the memory of the late Lieut.-Colonel E. F. Harrison. It was decided to institute a Harrison memorial lecture, to be delivered biennially on a subject relating to the science and

practice of pharmacy, the lectureship to carry with it the award of a medal, the "Harrison Lectureship medal," and to be accompanied by an honorarium of £10 10s. It was decided that the lecturer should be chosen by a selection subcommittee consisting of three members appointed by the Council of the Pharmaceutical Society and three members appointed by the Executive of the British Pharmaceutical Conference. The subcommittee were extremely fortunate in securing as the first lecturer under this scheme Major E. Saville Peck, who will lecture at the first of the Society's evening meetings in the coming winter session. The subcommittee also desire to recognise the lecture given by Mr. F. H. Carr in 1919 by asking his acceptance of a replica of the medal. In addition the name of Harrison will be commemorated by the gift of prizes of books to the three winners of medals each year in the Council prizes competition.

The Executive have had under consideration the question of publishing a general index to the "Year-Book of Pharmacy" from 1904 to the present date. The previous general index has been found extremely useful by many workers, and the suggestion has been made on many occasions that another volume should be issued, bringing the index up to date. The demand for such an index would necessarily be limited, and inevitably the production would be made at a loss. Such a loss, if not too great, could be met from some accumulated funds which are in the possession of the treasurer of the Conference. . . . It is proposed that this question should be settled at the first meeting of the Executive Committee in the new session, and if there should be any members of the Conference who would be willing to take a copy of the general index at the price of 12s. 6d., who have not already notified the general secretaries, it would be helpful if they would take the first opportunity of doing so.

Your Committee regret to record the death during the session of the following members: F. N. Layman, H. Shillinglaw, J. Whitfield. By the regretted death of Mr. A. R. Keith the Conference has lost a member who for many years showed a keen interest in its work and was a regular attender of the annual meetings. The Executive have to regret the resignation during the last session of Mr. H. Finmore, consequent upon his departure to take up an appointment in Australia. Mr. Finmore was general secretary of this Conference from 1909 to 1919, and was a frequent contributor of scientific papers. The Conference is indebted to him for many years of unselfish work in its interest.

Mr. DUFF (Glasgow) briefly moved the adoption of the report. Cordial thanks, he said, were due to the Executive, and especially to the two general secretaries.

Mr. FURNIVAL (Sheffield) seconded. It was regrettable, he added, that Mr. Finmore had been lost to the Conference, but he was glad that Mr. Mackie had been appointed to fill the vacancy. He trusted that the proposed general index would be carried through. The motion was carried.

TREASURER'S REPORT

Mr. R. R. BENNETT (treasurer) presented his annual report, which is summarised as follows:—

The accounts for 1926 show that the income from subscriptions paid by corresponding members was £65 2s., and the revenue from sales of the "Year-Book" was £63 2s. 5d. On the expenditure side, the cost of the "Year-Book" was £541 13s., and general expenses amounted to £219 13s. 11d. Apart from the foregoing figures the Conference account showed at the end of the financial year a balance in hand of £266 8s. 6d., £200 of which is on deposit account. Included in this balance there is an amount of £161 12s. 8d. credited to the Bell and Hills Fund. The revenue credited to the Bell and Hills Fund during 1926 was £35 10s. 5d. The only call on the Fund was £9 9s. 6d., being the value of books presented. The assets shown in the balance sheet are cash in hand £266 8s. 6d. and Consols to the nominal value of £1,610.

Mr. A. E. YOUNG (Leicester) briefly moved the adoption of the report.

Mr. McNAB (Gorebridge) seconded the adoption in a humorous speech. He could not, he confessed, have understood the accounts by a process of mental arithmetic. He had been obliged to resort to pencil and paper while the treasurer had been speaking. (Laughter.) The report was adopted.

British Pharmaceutical Conference, 1927.

PRESENTATION OF BOOKS

The chairman formally presented a gift of books from the Bell and Hills Fund to Mr. R. A. Cripps as the representative of the Brighton and Hove Branch of the Society.

Mr. CRIPPS, in acknowledging the gift, said that the books would be placed in the library of the Technical College.

OFFICERS ELECTED

Mr. H. HUMPHREYS JONES (Liverpool) proposed the election of the following officers for the ensuing year:—

President.—The President of the Pharmaceutical Society (Mr. H. Skinner).

Chairman.—Mr. R. R. Bennett.

Vice-Presidents (who have filled the office of President prior to 1923).—Messrs. E. M. Holmes, G. Claridge Druce, W. A. H. Naylor, R. Wright, J. F. Tocher, F. Ransom, E. H. Farr, E. Saville Peck, D. Hooper, W. Kirkby, C. A. Hill, H. G. Greenish.

Vice-Chairmen.—Mr. F. W. Gamble, Mr. E. White, Mr. D. Lloyd Howard.

Treasurer.—Mr. F. W. Crossley Holland.

General Secretaries.—Mr. C. H. Hampshire, Mr. C. E. Corfield.

Local Secretary.—Mr. P. James (Cheltenham).

Other Members of Executive.—The chairman of the North British Branch of the Pharmaceutical Society (*ex-officio*); the President of the Pharmaceutical Society of Northern Ireland; and the President of the Pharmaceutical Society of Ireland (*ex-officio*); Messrs. J. H. Franklin, N. Evers, A. R. Melhuish, B. F. Howard, H. B. Mackie, C. A. Noble; and three members of Council to be elected by the Council of the Pharmaceutical Society, Messrs. L. M. Parry, T. Marns, E. T. Neathercoat.

Mr. HUMPHREYS JONES commented, in the course of an amusing speech, on the capabilities of many of those in the list. The Conference should be proud of the fact that Dr. Claridge Druce had lately been elected a Fellow of the Royal Society. (Applause.)

Mr. HALLETT (Bath) seconded, and the motion was carried unanimously.

Mr. R. R. BENNETT (London), making acknowledgment on behalf of himself and his colleagues, remarked that it was an honour and a responsibility to follow Mr. D. Lloyd Howard in the chair. The secretaries, he added, really did the work.

MEETING-PLACE FOR 1928

Mr. WICKHAM (Cheltenham), on behalf of his local branch, invited the Conference to meet at Cheltenham next year. Cheltenham chemists, he said, considered themselves well fitted for the provision of accommodation and for social functions. The Cheltenham Branch was small but enthusiastic.

Mr. L. MORETON PARRY (Vice-President of the Pharmaceutical Society) moved that the invitation be accepted.

Captain BENNISON (Birmingham) seconded, and the invitation was cordially accepted.

VOTES OF THANKS

Mr. J. SMITH (Dublin), after acknowledging on behalf of the Council of the Pharmaceutical Society of Ireland an invitation to attend the Conference, moved a hearty vote of thanks to the local committees for their kindness and for the elaborate arrangements which had been made for the comfort of visitors. Without any desire to be invidious he could not refrain from mentioning the names of Mr. F. W. Burgess (local secretary), Mrs. Burgess, Mr. John Plowright (chairman of the Local Committee), and Mrs. Plowright.

Mr. A. R. MELHUISE (London) seconded the resolution, remarking that he was sure in advance of the success of the Conference. He desired to add to the names given by Mr. Smith those of Mr. Gwatkin (treasurer), Mr. Mackie, who had organised the sports, and Mr. Edgar Jones (convener of the publicity committee). The ladies' committee, under the chairmanship of Mrs. Plowright, had put in a great amount of work.

The CHAIRMAN, in putting the resolution, which was

carried by acclamation, added a word of personal gratitude to the Local Executive Committee.

Mr. PLOWRIGHT, replying to the vote of thanks, said that the expressions of satisfaction had amply repaid the committee for all the time and trouble taken; providing for a Conference of more than 500 people was a big task, but they had done their best, and he was vain enough to think they had been successful. (Applause.)

At the request of the chairman, a few brief words of acknowledgment were added by Mrs. Burgess, Mrs. Plowright and Mr. Burgess, the last-named of whom added that the work had been a labour of love, and that "we look well on it."

Mr. H. TODD (Belfast) proposed a vote of thanks to the chairman. He (the speaker) desired incidentally to express his thanks for an invitation from the Executive Committee. No more loyal subjects of the King were to be found than in Northern Ireland.

Mr. T. EDWARD LESCHER seconded the resolution, adding that it was one of the greatest honours in pharmacy to be elected chairman of the Conference.

The vote of thanks was carried by acclamation, and the chairman, after a brief response, declared the Conference closed.



40. (1) Mr. J. A. Collins (miniature golf competition); (2) and 3) Mrs. F. G. Wells and Mr. W. E. Swanston (tennis); (4) Mr. C. Wherly (clock golf). Mr. Mackie (X) is holding the Edmund White Cup for the winner.



41. The President of the Pharmaceutical Society (left) taking leave of the Mayor of Brighton.

Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42, Cannon Street, E.C.4, June 30

THE close of the half-year finds business without any decided improvement in Mincing Lane, although a considerable amount of animation has characterised the pepper, Jamaica ginger and shellac markets, which are all higher. Both American and Japanese peppermint oils are dearer on more active speculative demand. The firmness in wormseed oil is fully maintained, and higher prices are quoted for lemon and Penang patchouli oils. New lobelia herb is cheaper, and ipecacuanha is weak; quillaia is scarce and firm; arcaea is cheaper to arrive. In the pharmaceutical chemical group business has been moderate with few changes. Hydroquinone and potassium sulphoguaicolate are lower, as these products have been exempted from Key Industry duty. Citric acid is dearer. Potassium permanganate is firmer, and sodium benzoate is in good demand. Amidopyrin, methyl sulphonal, sulphonal and German milk sugar are cheaper. Among industrial chemicals business is moderately good with no price changes of importance. Lead products are slightly easier following cheaper prices for metal. Carbolic acid crystals, although quiet, are steady. Cresylic acid is very firm. The market for fixed oils remains distinctly quiet and the trend of values has been easier. Turpentine has further weakened; cotton is irregular; groundnut, soya, wood and linseed oils are cheaper. In "outside" articles there has been a sharp rally in mercury of about 30s. per bottle.

Higher	Firmer	Easier	Lower
Camphor oil	Bergamot oil	Amidopyrin	Hydroquinone
Castor oil	Lemon oil	Arcaea	Linseed
(Italian)	Patchouli oil	Benzoic acid	(Mazagan, c.i.f.)
Citric acid	Potassium	Clove oil	Lobelia herb
Ginger	permanganate	Cloves (Zan, c.i.f.)	(new crop)
(Jamaica)		Ground nut oil	Methyl
Mercury		Lead products	sulphonal
Pepper		Lemongrass oil	Potassium
Peppermint oil		Linseed oil	sulphoguaicolate
(Amer. and Jap.)		Milk sugar	(Germ.)
Pimento (c.i.f.)		Rosewood oil	Sulphonal
Shellac		Soya oil	Turpentine
		Wood oil	Vetivert oil
		(Hankow)	

Cablegrams

BERGEN, June 29.—The catch of cod since the opening of the season amounts to 66,800,000, against 89,100,000 at the corresponding period of last year, and the yield of steam-refined non-freezing oil is 71,997 hectolitres, against 120,954 last year. The quotation for finest new steam-refined non-freezing Lofoten cod-liver oil is about 182s. per barrel, c.i.f. London, market being quiet. The fishing is now closed.

NEW YORK, June 23.—Business is fair. Peppermint oil, in tins, has advanced to \$3.90 per lb. Cartagena ipecacuanha is cheaper at \$3.10, and jalap (7 per cent. U.S.P.) has been reduced to 16c. Balsam tolu is lower at 87c., and copaiba has been reduced 52c. per lb. Mercury is lower at \$116.00 per flask. Digitalis leaves have declined to 28c. per lb., and lobelia herb to 95c. per lb.

NEW YORK, June 29.—Business is quiet. Peppermint oil in tins has advanced to \$4.15 per lb. Mercury is dearer at \$122 per flask, and henbane has advanced to 35c. Senega has declined to 85c. per lb., and cascara sagrada to 18c. Oregon balsam of fir is lower at \$1.35 per U.S. gallon. Rhubarb is cheaper at 47c., and damiana has declined to 38c. per lb.

Crude Drugs, etc.

ALOES.—Curaçao in cases is offered at 62s. per cwt. c.i.f. for t.q. There are very few fine livers on the spot, from 75s. to 80s. being asked. Coarse liver is also scarce, the bulk of the stock being black capcy.

ANTIMONY.—The market for spot Chinese continues quiet, and some comparatively cheap offers are reported of parcels

afloat, this referring to resale lots obtainable at about £49. Terms for shipment are well held at £48 c.i.f. Parcels-ex-warehouse are worth £53 10s. to £54. English high-grade refined is at £74 10s. to £75.

ARECA.—To arrive 32s. 6d. per cwt. c.i.f. is quoted, and the spot value of sound Ceylon is about 44s. per cwt.

BELLADONNA ROOT remains firm at from 60s. to 67s. 6d. per cwt. on the spot, according to test.

CADMIUM.—There is a steady demand for Australian, which is selling very well at 1s. 10d. per lb., but American is neglected at 1s. 11d.

CARAWAY SEED.—Dutch is slow of sale, offering for prompt shipment at 35s. per cwt. c.i.f., and for forward shipment a premium of 2s. is asked.

CASCARA SAGRADA.—New crop prices range from 60s. to 65s. per cwt. c.i.f., for July-September shipment. Some early sales were made at 55s. per cwt., but these cannot be repeated. To-day's spot prices are unchanged at 62s. per cwt. for 1926 peel, 65s. for 1925, and 67s. 6d. for 1924.

CLOVES continue quiet, Zanzibar offering at 8½d. per lb. on the spot. To arrive, August-October shipment is quoted at 7½d., and October-December shipment at 7½d. per lb. c.i.f., delivered weight. The landings in London during the week ended June 18 were 300, and the deliveries 173, leaving a stock of 12,767 bales, against 14,570 bales in 1926, and 13,203 bales in 1925. Up to June 25 the landings of Zanzibar in London have been 14,438, against 9,650 in 1926, while the deliveries amount to 9,294, against 9,280 last year.

COD-LIVER OIL.—The fishing is now finished, and the total shortage on this year's production against last year almost reaches 39,000 barrels. This is a decline of fully 40 per cent. in production, which is a very important factor and should be taken into consideration by consumers. Prices remain unchanged at about 180s. per barrel c.i.f. for finest non-freezing, steam-refined Lofoten oil, and although business is slow at the moment, there is little desire on the part of makers to reduce prices.

BERGEN, June 25.—The catch at Finmarken last week was partially hindered by stormy weather. This fishery, which is the last of the season, will probably be closed this week. The total output of all the Norwegian codfisheries, compared with that of previous years, is as follows:—

	To	Catch of cod	Yield of steam-refined cod-liver oil	Livers for crude oils
June 18, 1927	..	65,400,000	71,264 hectol.	7,107 hectol.
" 19, 1926	..	89,100,000	120,954 "	17,071 "
" 19, 1925	..	60,087,000	94,453 "	11,232 "
" 24, 1924	..	70,000,000	115,286 "	19,976 "
" 23, 1923	..	51,600,000	85,073 "	17,093 "

The market continues quiet, with only small sales at the unaltered price of 182s. per barrel c.i.f. London for non-freezing steam-refined quality.

DIGITALIS LEAVES.—New crop is offered at 70s. per cwt. c.i.f. ERGOT is quiet and unchanged, Russian or Polish offering at 2s. 8d. per lb. on the spot, and at 2s. 7d. c.i.f.

GALLS.—Chinese plum-shape to arrive is 58s. per cwt. c.i.f., and ordinary shape 56s. c.i.f.

GINGER remains firm. African on the spot has been sold at from 33s. 6d. to 34s. per cwt. Fair washed rough Cochinchina is 50s.; brown rough Calicut, 55s. per cwt. Jamaica has had a spectacular rise, although the statistics reveal a London stock of 7,246 packages Jamaica, with new crop arriving freely. Bold is quoted at from 90s. to 125s. per cwt., and even more.

GUM ACACIA.—The 1926-27 Sudan crop was up to average, and good stocks, both here and in the Sudan, point to present prices being stabilised until the commencement of the new crop, i.e., November. To-day's prices, c.i.f. for July shipment, are: natural, 39s. per cwt.; cleaned, 41s.; cleaned and sifted, 43s. 6d.

INSECT FLOWERS are in fair inquiry. Dalmatian clove at hand offering at 115s. per cwt. c.i.f. Good powder is offered at 1s. 3d. per lb.

IPECACUANHA continues very weak, sellers inviting bids in the neighbourhood of 18s. per lb. for Matto Grosso, of which about 44 bales have arrived, and although part of this will go direct into consumption, there is little chance of prices improving while consumers show such apathy.

LOBELIA HERB.—New crop prices are lower, 1s. 6d. per lb. being quoted for July-September shipment. Spot price still remains nominally at 4s. per lb.

MACE is firm, West Indian offering at 4s. 1d. for good pale down to 3s. 10d. per lb. for fair: fair Singapore is 3s. 9d. to 4s., common 3s. 6d., and pickings 3s. 3d. per lb.

MAGNESIUM is steady, and a moderate business is being done in small ingots by home makers on the basis of 3s. 9d. to 4s. 3d. per lb., and powder is 5s. to 6s. 3d., according to quality and quantity.

MANNA.—Selected flake in 1-lb. tins is offered at 3s. 6d. per lb.

MENTHOL is quite inactive, Kobayashi-Suzuki offering at 16s. 3d. per lb. on the spot, and July-August shipment at 15s. 6d. c.i.f.

MERCURY.—The market at the opening of this week resumed distinct firmness, with the price recovering a good part of the recent decline on account of a renewed demand from China, Japan, and also New York. The quantity referred to which had not been taken up recently for Japan apparently was about 1,000 bottles, which, however, is said to have been absorbed. The fact that good lines of about 400 to 500 bottles were placed on Monday for home consumption, chiefly London and Scotland, prompted holders to raise their terms to £21 15s. to £22 per bottle on the spot, and we hear that Italian and Spanish producers are now asking up to about £21 10s. f.o.b. for August shipment. On account of the high prices the Almaden mines extended their operations to the end of June, so that the seasonal interruption will not be so lengthy as usual this year.

NUTMEGS are firm, with a poor selection offering. Singapore: 110's, 1s. 9d.; 80's, 2s.; 65's, 2s. 9d. per lb.; West Indian, 110 to 100's, 1s. 2d. per lb.

OPIMUM is unchanged at 2s. 3d. per unit on the spot for usual Turkey druggists', with continued small stocks. Opium valued at £8,075 has arrived from India, consigned to the High Commissioner of British India.

PEPPER has been in active demand at rising prices in consequence of small shipments and heavy deliveries. Fair black Singapore has advanced to 1s. 3½d. Lampong has been sold up to 1s. 4½d. spot; April-June shipment has been done at 1s. 2½d. to 1s. 4½d. c.i.f.; July-September, 1s. 3½d. to 1s. 4½d.; August-October at 1s. 2½d. to 1s. 4d. c.i.f. Tellicherry spot is 1s. 3½d. and Alleppy 1s. 3½d. spot. White Muntok has advanced to 2s. 3d. spot; June-July shipment sold at 1s. 1½d. to 1s. 1½d.; July-September at 2s. to 2s. 1d.; August-October at 1s. 10½d. to 2s. 1d. c.i.f. Singapore has been sold at 2s. c.i.f. for May-July shipment.

PIMENTO is dearer for shipment, August-September offering at 69s. per cwt. c.i.f.; spot is 8½d. per lb.

QUILLARIA is scarce and firm, with offers at 48s. 6d. per cwt. c.i.f. Hamburg.

RUBBER has again been subject to violent fluctuations, and after rising to 1s. 6d. has fallen to 1s. 5½d., which was the spot price ruling at the close. The feature has been the deliveries from London, which totalled 4,104 tons, which we believe is a "record" of outgoings for plantation rubber in one week. This goes to show that there has been a fair amount of buying at the lower price level. Stocks were decreased by 2,418 tons on the week, and the London stock now stands at 64,486 tons, against 22,664 tons at the corresponding period last year. A further drop in stocks is anticipated for next week, but as to whether this is a forerunner for the future it is at the moment impossible to say. We still believe fairly heavy shipments are due here in the course of the next few weeks. Quotations (Wednesday, 5 p.m.): No. 1 standard ribbed smoked sheet, spot and July, 1s. 5½d.; August-September, 1s. 5½d.; October-December, 1s. 5½d. per lb.

SAFFRON.—Valencia is cheaper on the spot at from 60s. to 65s. per lb. as to quality.

SEEDS.—The market has dropped back to its previous quiet tone and prices in most cases are a little easier.

ANISE.—Spanish is 49s. and Russian 29s. CANARY.—Mazagan is 17s. spot, and 16s. 6d. c.i.f. is quoted for forward shipment, and Saffi is quoted at 15s. 10½d. c.i.f. CUMIN.—Maltese is 66s. spot, and Morocco is quoted at 47s. 6d. c.i.f. for new crop. CORIANDER.—New crop is offered at 26s. landed and 22s. 6d. c.i.f. is quoted for forward shipment; Hungarian is 23s. spot. FENUGREEK.—Morocco is 15s. 6d. spot and new crop is offered at 13s. 9d. c.i.f. for forward shipment. DILL is 21s. 6d. HEMP.—Manchurian is 14s. to 15s. LINSEED.—Mazagan is 20s. 6d. on the spot, and new crop is easier at 18s. 3d. c.i.f. for July-August shipment. MUSTARD.—English is 29s. per cwt.

SENNA.—Recent reports from India do not confirm the original anticipated short crop, but the quality will be poorer than usual owing to rain damage. The low grades will be cheaper, but good qualities scarce, and will command high prices. To-day's prices:—T.V. pods, f.a.q., 4d. per lb. c.i.f.; T.V. leaves, manufacturing, 2d. per lb. c.i.f.; spot prices are: T.V. pods, f.a.q., 4½d. to 5½d. per lb., and hand-picked, 10½d. per lb. The final gatherings of the 1926-27 crop of Alexandrian senna pods are completed, and the central collecting centre, known as the "Zareba," will be closed until the middle of November, at which time the first arrivals of the new crop will begin. The pods from this next crop will be graded and ready for shipment during January-February 1928. The past crop was approximately 80 per cent. normal. Existing stocks of crude in the Sudan now in process of cleaning are small, and shipments for the ensuing six to nine months will be negligible. Prices are therefore bound to be affected by this position

and a gradual rise may be anticipated. To-day's spot prices are:—Hand-picked pods, 3s. 10d. to 4s. 6d. per lb.; sifted pods, 2s. 3d. to 2s. 6d.; manufacturing pods, 10d. per lb.

SHELLAC.—Another considerable decrease is looked for in the warehouse stocks for June owing to small arrivals and the very good trade demand. The market advanced sharply and spot holders maintain a firm attitude, usual standard TN orange quality closing at 247s. 6d.; fine orange is 245s. to 330s., pure bulton 275s., and AC cakey 215s. per cwt. For delivery, the sales include August at 235s. to 247s. to 245s., October 237s. 6d. to 246s. to 250s. to 248s., December 238s. to 252s. to 250s. To arrive, TN orange for June-July shipment has been sold at 230s. to 237s. 6d. c.i.f., July-August at 232s. 6d. to 237s. 6d., and September-October at 235s. c.i.f.

SQUILL.—Good white is offered at 23s. 6d. per cwt., and No. 2 grade at 17s. per cwt. on the spot.

WAX (VEGETABLE).—Japanese remains steady, spot offering at 100s. per cwt.; forward positions are unchanged.

Essential Oils

A FURTHER advance has taken place in American and Japanese peppermint oils. Patchouli is tending firmer. Lemon and bergamot are dearer. Clove is easier. Cochin lemongrass and rosewood are cheaper. A further decline is noted in Bourbon vetiver.

ANISE (STAR).—"Red Ship" on the spot is steady at from 2s. 7d. to 2s. 7½d. per lb. Leads have been offered at 2s. 3d. c.i.f.

BERGAMOT.—Higher prices are quoted for shipment at 26s. per lb. c.i.f. to arrive. On the spot there are sellers at 26s., or less in some directions.

CAMPHOR OIL is firm at 75s. per cwt. spot in drums, and 7s. 6d. extra in tins and cases; supplies are scarce.

CANANGA.—Small spot sales of Java have been reported at 19s. per lb.

CARAWAY.—Dutch double-rectified is quoted on the spot at from 6s. 6d. to 6s. 9d. per lb.

CASSIA on the spot is unchanged at 6s. 9d. per lb. for 80 to 85 c.a. For shipment 6s. c.i.f. is quoted.

CITRONELLA.—Ceylon is unchanged at 1s. 4½d. per lb. on the spot and 1s. 3½d. c.i.f. for shipment. Java is dull at 1s. 8d. on the spot, and for shipment 1s. 7d. c.i.f. is quoted.

CLOVE.—English distilled is rather easier on the spot at from 5s. to 5s. 3d. per lb. for 90 to 92 eugenol. B.P. oil in druggists' quantities is quoted at from 5s. 6d. to 5s. 9d.

EUCALYPTUS.—Shipment afloat of Australian, 70 to 75 cineol, is quoted at 1s. 1½d. per lb. landed. Actual spot is scarce. For 75 to 80, 2s. 2d. is wanted.

GERANIUM.—Offers have been made of Bourbon oil at 165 fr. per kilo c.i.f. (= 12s. 3d. per lb. approximately) from Réunion. On the spot from 12s. 6d. to 12s. 9d. is quoted. About 12s. is wanted for Algerian.

LEMONGRASS.—Arrival prices are higher at from 7s. 3d. to 7s. 1½d. per lb. c.i.f. Dealers appear to have small stocks, although wholesale distributors have fair supplies; on the spot, from 7s. 3d. to 7s. 6d. is quoted.

LEMONGRASS.—Cochin is quiet at 3s. 4d. per lb. c.i.f. On the spot 3s. 4½d. to 3s. 5d. is quoted, which is easier.

LIME.—West Indian distilled has been sold at 30s. per lb. on the spot.

PALMAROSA on the spot is quoted at 9s. 6d. per lb.

PATCHOULI.—Penang is tending firmer; small lots of usual quality are obtainable at 35s. to 36s. per lb., but higher prices are wanted in some directions.

PEPPERMINT.—American natural tin oil is dearer, spot business in branded oils having been done up to 17s. per lb. For prompt shipment 16s. 6d. per lb. c.i.f. was quoted early in the week, but at the close on Wednesday 17s. 6d. c.i.f. was quoted. Japanese demethylated is firm and dearer at 7s. 9d. to 8s. per lb. on the spot, with sales thereat. Quite a good speculative business has been done in forward positions, including July-August shipment at 7s. 9d. to 7s. 10½d. per lb. c.i.f.; October-December at 7s. to 7s. 3d., with buyers on Wednesday at 7s. 4½d. c.i.f.; and January-March at 7s. to 7s. 1½d. c.i.f., closing 6s. 9d. to 7s.

PETITGRAIN.—Paraguayan on the spot is unchanged at 6s. 6d. per lb. for original cases; five-case lots are obtainable at 6s. 1d.

ROSEMARY.—Spanish on the spot is quoted at from 2s. to 2s. 3d. per lb.

ROSEWOOD (BOIS DE ROSE) is weaker at from 9s. 3d. to 9s. 6d. per lb. for usual Cayenne quality.

SPIKE.—Spanish on the spot is steady at 3s. 8d. to 4s. per lb. as to grade. For shipment 3s. 10d. c.i.f. is quoted.

VETIVER.—Lower c.i.f. quotations have again been made for Bourbon. The sudden collapse is attributed chiefly to liquidations at Marseilles.

WORMSEED (CHENOPodium).—According to a report dated June 15 from a distiller, the situation at the producing

district is touse, with distillers disinclined at present to sell. Stocks are small for the time of year. The plants, which are transferred to the open after being raised in hot beds, have been attacked by blight, and there is the indication of a curtailed yield. Sellers are asking a \$4.00 price. London dealers quote at least 16s. 6d. per lb. e.i.f., and still higher prices are current. Spot is difficult to find.

The following arrivals have taken place at London from the countries indicated during the period June 15 to June 20 (inclusive): Anise (Ch.), 25 cs.; bergamot (It.), 4 cs.; birch, sweet (U.S.), 6 cs.; cajuput (Jv.), 15 es.; cassia (Ch.), 15 cs.; cedar leaf (Can.), 2 dm.; cinnamon leaf (Cey.), 13 cs.; citronella (Cey.) 14 dm.; (Fr.) 6 cs., (Jv.) 10 dm.; eucalyptus (Aust.), 25 cs.; geranium (Fr.), 1 dm.; guaiacumwood (U.S.), 3 cs.; lavender (Fr.), 9 cs.; lemon (U.S.) 5 dm., (It.) 26 x ½ cs., 68 cs., (Ger.) 10 dm.; lime (B.W.I.) 1 es., (U.S.) 1 cs.; neroli (Fr.), 1 es.; orange (B.W.I.), 11 cs.; palmarosa (Br. Ind.), 3 pots; patchouli (Straits), 9 cs.; peppermint (It.), 1 cs.; pimento (Ger.), 1 cs.; rose (Fr.), 2 cs.; rosemary (Sp.), 4 dm.; spearmint (U.S.), 1 dm, 2 es.; spike (Sp.), 3 dm.; vetiver (Fr.), 1 dm.; undescribed (Holl.) 1 cs., (Fr.) 8 cs.

The following arrivals have taken place from the countries indicated during the period June 21 to 28 (inclusive):—Anise (Ch.), 30 cs.; bergamot (It.), 16 cs.; cajuput (Dutch E.I.), 15 cs.; camphor (Ger.), 10 dm.; citronella (Cey.), 5 dm.; clove (Ger.), 9 dm.; eucalyptus (Belg.), 20 cs.; geranium, (Alger.) 2 dm., (Ger.) 1 cs.; ginger (U.S.), 1 cs.; guaiacumwood (Ger.), 7 cs.; juniper berry (Czechoslov.), 2 es.; lavender (Fr.), 3 es.; lemon, (It.) 133 cs., 85 x ½ cs., (U.S.) 10 dm., (Ger.) 2 dm.; mandarin (It.), 2 cs.; orange, (B.W.I.) 11 cs., (It.) 20 x ¼ cs.; orris (Fr.), 5 cs.; pepper-mint, (U.S.) 6 cs., 3 dm., (Ger.) 17 cs.; pino (Switz.), 1 cs.; rosemary, (Sp.) 3 dm., (Fr.) 1 cs.; sandalwood (Br. Ind.), 45 cs.; thyme (Sp.), 5 cs.; undescribed, (It.) 10 cs., (Fr.) 4 cs., (Switz.) 1 cs.

Pharmaceutical Chemicals, etc.

EXCEPT for reductions in the prices of hydroquinone and potassium sulphoguaicolate, which have been removed from the key industry duty list, there is little change to report. Benzoic acid, amidopyrin, methyl sulphonal, sulphonal, and German milk sugar are more or less cheaper. Citric acid is dearer.

ACETANILIDE remains quiet at 1s. 6d. per lb. for B.P. crystals and powder.

AMIDOPYRIN does not meet with much business at about 8s. 6d. per lb., being slightly easier.

ASPIRIN.—A fair volume of business continues at the unchanged rates of 2s. 4d. to 2s. 5½d. per lb., as to quantity and grade.

BARBITONE has been quiet at about 5s. 10d. per lb., and slightly less for quantities.

BENZALDEHYDE is quoted at 1s. 11d. per lb. for quantities in carboys; business remains quiet.

BENZOIC ACID (B.P.).—Business has been good, with prices easier for British from 2s. 1½d. per lb., ex works; Continental, p.f.f.c., 3s. spot.

BROMIDES continue very steady, with about normal business being done: ammonium, 2s. 1½d. to 2s. 1¾d.; potassium, B.P. crystals, 1s. 9½d.; powder, from 1s. 9d.; sodium, from 1s. 11d. per lb., in quantities.

CALCIUM LACTATE is steady at about 1s. 2d. per lb. for fair quantities, and business has been better.

CHLORAL HYDRATE.—For one or two large orders a shade less than 3s. 1d. has been taken for duty-paid crystals; ordinary-sized quantities from 3s. 2d. to 3s. 3d. per lb.

CITRIC ACID (B.P. crystals).—Business has again been poor for the time of year, but prices are rather higher. One of the big Continental makers is now quoting up to 1s. 8½d. per lb., less 5 per cent., e.i.f., but it is unlikely that this figure will attract business: spot is from 1s. 7½d. to 1s. 7¾d. per lb., less 5 per cent., for foreign.

CREOSOTE.—B.P. is very steady at from 1s. 9d. per lb. for quantities: small lots, 1s. 10d.

CREOSOTE CARBONATE has been quiet at 5s. 9d. to 6s. per lb.

ETHYLENE GLYCOL.—Pharmaceutical quality in tins is quoted at 2s. 6d. per lb.

GUAIACOL CARBONATE is steady at 5s. per lb., but business remains quiet.

HEXAMINE continues steady, with a moderate business: dealers quoting from 2s. 4d. to 2s. 5½d. per lb.

HYDROGEN PEROXIDE is quoted at from 2s. 3d. to 2s. 11d. per lb. for 10 vol., according to quantity and nackage.

HYDROQUINONE.—The key industry duty has been removed and prices for material to come forward are cheaper at about 3s. 1d. to 3s. 2d. per lb. The market has not yet settled down.

LACTIC ACID (B.P.) continues steady from 2s. 6d. per lb., with fair business: technical, 50 per cent. by weight, £39 per ton, ex store.

METHYL SALICYLATE is steady, with the bottom price for large quantities 1s. 6d.; ordinary-sized parcels from 1s. 6½d. to 1s. 7d. per lb. The market has been slow.

METHYL SULPHONAL is slow of sale, and about 1s. lower at 9s. 6d. per lb.

MILK SUGAR.—German is easier at 57s. per cwt. in ten-case lots, up to 58s. being quoted for single cases.

PARAFORMALDEHYDE (100 per cent. powder) is steady and in fair request at 1s. 8d. to 1s. 9d. per lb., in kegs.

PARALDEHYDE remains quiet and unchanged at 1s. 1½d. to 1s. 2½d. per lb., according to quantity and packing.

PHENACETIN.—Fair business is reported, with the market steady: dealers quote 2s. 8d. for large parcels to come forward; spot is from 2s. 9d. per lb.

PHENAZONE is still suffering from keen competition and business is rather poor: dealers' prices run from 4s. 3d. to 4s. 4d. per lb., and slightly less for large quantities.

PHENOLPHTHALEIN shows no change, dealers offering half-ton lots at 5s. 11d.; small parcels from 6s. to 6s. 2d. per lb.

POTASSIUM PERMANGANATE (B.P.) is firmer, with dealers now quoting steadily at 6½d. per lb., in drums; business slow.

POTASSIUM SULPHOGUAIACOLATE.—Key industry duty has been lifted, and dealers' prices to arrive would be about 4s. 3d. per lb.

RESORCIN continues unsteady, with ordinary-sized parcels mentioned at about 4s. to 4s. 3d. per lb.; slightly less for quantities in some quarters.

SACCHARIN (550).—There has been no change in this product, prices being maintained for home trade at 55s. per lb., duty paid.

SALICYLIC ACID (B.P.) has been dull but prices seem quite steady in the region of 1s. 3½d. to 1s. 4d. per lb.

SALOL is steady at level rates on the week: dealers quote from 2s. 3½d. to 2s. 3¾d. per lb., and 1½d. per lb. more for powder.

SODIUM BENZOATE (B.P.).—A good volume of business has been done this week, with prices about 1s. 8d. to 1s. 8½d. per lb.

SODIUM DIETHYLBARBITURATE is quiet at about 8s. 10d. to 9s. per lb., spot.

SODIUM SALICYLATE (B.P.) has been distinctly quiet, but prices are maintained; market is unsteady: crystals, from 1s. 9½d.; powder, from 1s. 9d. per lb., for quantities.

SULPHONAL is about 6d. per lb. cheaper at 6s. 6d. per lb.

TANNIC ACID.—B.P. *teriss* is steady on a quiet market at 2s. 8d. to 2s. 10d. per lb., as to quantity.

TARTARIC ACID (B.P. crystals) has remained decidedly flat all the week, but prices are maintained and the position appears to be quite steady both here and on the Continent: foreign spot is 1s. 3½d. to 1s. 4d. per lb., less 5 per cent.

TERPIN HYDRATE is neglected at from 1s. 6d. to 1s. 8d. per lb.

THYMOL.—Prices remain at the low levels of 10s. 3d. to 10s. 6d. per lb., and business is of little account. A recovery in prices is anticipated at no distant date. Ex ajowan seed continues steady at the bottom price of 11s. 3d. to 11s. 6d. per lb.

VANILLIN (100 per cent. from cloves) is steady at from 17s. to 17s. 3d. per lb.

Among the chemicals which have paid key industry duty during the period June 14 to 18 inclusive are the following: Acetic acid, £531; acetic acid, glacial, £533; butyl acetate, £1,530; cinnamic aldehyde, £112; cocaine hydrochlor., £656; heliotropino cryst., £266; hydrocyanic acid, £109; lactic acid, £250; magnesium hydroxide, £363; metaldehyde, £473; potash bromide, £214; quinine ethyl carb., £106; sodium salicylate, £151; zyklon, £134; undescribed chemicals, £1,591.

Industrial Chemicals, etc.

London, June 29.

A MODERATELY good business is reported from most centres and the general tone of the industrial chemical market keeps quite steady, although there is severe competition in some lines. There are no price changes of importance.

ACETONE continues to move in fair volume, with dealers' prices steady at £58 to £61 per ton for B.G.S.

ACETIC ACID is steady, with business normal: 80 per cent. technical and 80 per cent. pure, £37 per ton, in barrels; glacial, pharmaceutical, 99 to 100 per cent., £66, in glass demijohns; glacial, in barrels, £56 per ton, ex store.

AMMONIA (ANHYDROUS) is moving in small quantities for spot delivery at very competitive prices: quoted at about 1s. per lb., in loaned cylinders, earriage paid.

ARSENIC.—The market is steady to firm, although there is not a great deal of business. The nearest quotation for Cornish 99 per cent. is £15 10s. per ton, f.o.r. mines, but it is possible that this figure might be shaded.

BARIUM CHLORIDE is offering on spot at about £8 15s. per ton, in casks, for 98 to 100 per cent. prime white crystals; cheaper prices for quantities to come forward.

BLEACHING POWDER shows no change, but prices are being cut: British, £8 per ton, carriage paid.

COPPER SULPHATE.—There is a fair export trade and business is possible at about £21 15s., although up to £25 5s. is quoted f.o.b. for casks, less 5 per cent. Italian competition on the Continent is very keen, makers having developed their operations considerably.

CREAM OF TARTAR has been quiet again this week, but there is no sign of a break at £7s. 6d. to 9s. per cwt., less 2½ per cent., for B.P. quality of foreign make.

ERSOM SALT has been quiet on spot, with dealers offering parcels at £4 15s. to £4 17s. 6d. per ton, in single bags, ex store; cheaper prices for quantities to come forward.

FORMALDEHYDE continues steady at £40 per ton for 40 per cent. by volume; business about average.

FORMIC ACID is meeting with good business at from £45 17s. 6d. to £46 per ton for 85 per cent., in carboys.

GLAUBER'S SALT is offering in spot parcels at about £3 12s. 6d. per ton, in single bags, ex store.

LEAD PRODUCTS.—Prices are slightly easier, with the market quieter, closing unsteady. Lead acetate, brown, £41; white, £43 per ton, in casks, ex store; red lead, imported, £31, c.i.f. London; white lead, dry, £30 2s. 6d.; ground in oil, £31 12s. 6d., c.i.f. London.

OXALIC ACID is moving in good volume at from 2½d. per lb.; small lots, 3d.

POTASH CAUSTIC.—There is no change in the Convention price of £30 10s. per ton for spot 88 to 92 per cent. solid, in casks; 15 tons or more, £28 15s. per ton, c.i.f. U.K. port.

POTASSIUM CARBONATE has been in moderate demand: 99 to 92 per cent., £26; 96 to 98 per cent., £23 per ton, in casks, ex store; cheaper for contracts.

POTASSIUM CHLORATE is still dull, quantities offering down to 2½d. per lb.; smaller parcels on spot at 3d. per lb.

POTASSIUM PERMANGANATE has been slow for some time, but prices are steady at 5½d. per lb., in two-cwt. drums.

POTASSIUM PRUSSATE.—Yellow is 7½d. per lb., in casks.

SODIUM ACETATE has met with good business and prices are now steady from £18 per ton, in casks, ex store.

SODIUM CHLORATE is dull and cheap for quantities down to 2½d. per lb.; spot parcels from 3d. per lb.

SODIUM HYPOSULPHITE continues steady, with dealers finding fair business: pea crystals, in one-cwt. kegs, £15 2s. 6d. to £15 5s. per ton; commercial lump, £9 5s. per ton, in casks, ex store; British makers quote pure crystals to home consumers on contract £15 5s. per ton, carriage paid.

SULPHUR is on the firm side, with a fair demand for crude on the basis of £6 5s. to £6 7s. 6d., and refined sorts are firmly held, with Sicilian flowers at £13 7s. 6d., and roll at £10 15s., all c.i.f. to arrive.

COAL-TAR PRODUCTS, ETC.—There is little change to report in this section. Business has been moderately good. Carboic acid crystals are well maintained at level prices on the week. Pitch is nominal. **ANILINE OIL** continues in fair demand, with prices steady at 7d. per lb., carriage paid, in loaned drums. **ANILINE SALT** is unchanged at 7d. per lb., packages extra, carriage paid. **BETANAPHTHOL** is steady at about 1s. to 1s. 0½d. per lb., carriage paid. **TOLUOL** continues in fair demand; commercial 90's, 1s. 4½d. North, and 1s. 6d. London and South, ex works. **XYLÖL** is very slow; pure, about 2s. 5d.; commercial, 2s. per gallon, ex works. **CARBOLIC ACID CRYSTALS**.—The market, although quiet, retains a firm and steady tone: 8½d. to 9d. per lb. is the price for ten to twenty-cwt. lots of 39° C. to 40° C. ordinary ace crystals, and only slightly less for substantial export quantities. **CRESYLIC ACID** is very firm. Some makers are asking 2s. 6d. per gallon naked for standard pale, though this price has not yet been paid. The lowest figure at which any quantity could be bought to day would be about 2s. 4½d. per gallon, naked. **NAPHTHALENE** meets with occasional business, with imported flakes and balls quoted at about £15 15s. per ton, in cases, ex wharf. Pure **METHYL ALCOHOL** is steady on a quiet market: one-ton lots, £46 per ton, in drums; cheaper for quantities. **PYRIDINE** is very slow at 7s. per gallon, f.o.b. **PITCH**.—The market quotation is nominal at 82s. 6d. per ton, f.o.b. East Coast; season has ended.

Fixed Oils, etc.

GENERALLY the markets remain distinctly quiet and the few slight changes in prices are to easier rates. Linseed oil is cheaper, and American turpentine continues to weaken. Palm oils show some recovery, but the market is unsteady. **ACID OILS**.—Business is still very poor and prices are unsteady: coconut and/or palm kernel, 33s.; groundnut, 31s.; soya, 27s. per cwt, spot. **CASTOR**.—Prices are about the same, but business remains very quiet: pharmaceutical, 50s. to 50s. 6d.; first pressings, 45s. to 45s. 6d.; second pressings, 42s. per cwt., spot, in barrels, in not less than one-ton lots. Italian

tasteless is dearer at 83s. per cwt., ex wharf, in tins in cases, and 78s., c.i.f., for ten-case lots. **COCONUT** is very dull and quotations unsteady: deodorised, spot, 47s. 6d.; Ceylon, 40s. c.i.f.; Cochín, 43s., c.i.f. **COTTON** is quiet again, with prices irregular: deodorised, 47s.; common edible, about 44s.; soap-making, 42s.; crude, 40s., spot. **GROUNDNUT** continues dull and is easier: deodorised, down to 52s. spot; crude Oriental, 44s., c.i.f. **PALM KERNEL** shows no change and business is quiet: deodorised, about 50s.; crude, 41s. 6d., spot. **PALM**.—Quoted prices show a slight recovery, but the market has been dull throughout and the tone is far from steady at the close: Lagos, 51s. 3d.; softs, 30s. 6d.; mediums, 30s. 9d.; hards, 32s. 9d.; bleached, 33s. 6d., spot. **RAPE**.—Business has been quiet and prices unchanged: refined, 48s. 6d.; crude, 46s. 6d., spot. **SOYA** is slightly easier: deodorised, 40s. 6d.; crude, about 36s. 9d., spot. **LINSEED** (raw, naked).—Prices show a slight loss on the week and the market closes quiet: on spot, 33s. 3d.; July-August, 32s. 6d.; September-December, 33s. 1½d. Boiled oil, 37s. 6d., spot. Hull, on spot, 33s. 3d.; July-August, 33s. 3d.; September-December, 33s. 3d. **TURPENTINE**.—There has been an accentuation of the recent depression and there seems to be no end to the fall in prices so long as the demand is held up. Buyers, of course, are seriously prejudiced by the remarkably heavy crop movement in America. London spot closes at 37s. per cwt., and July-December 38s. 3d. Deliveries last week were quite good at 2,187 barrels, making a total since January 1 of 66,915 barrels, which compares with 58,208 barrels the same period last year. The total stocks were returned at 19,423 barrels, against 10,508 barrels a year ago, and, including the afloats, the visible supply for London amounts to 26,598 barrels, against 14,835 barrels last year. **RESIN** has been in slightly improved demand, but this has not been sufficient to check the decline. C.i.f. terms for American are as follows: B to N 19s. 3d., W.G. 20s. 6d., and W.W. quality 21s. Terms on the spot are comparatively well held, showing a full premium due to low stocks. **WOOD**.—Hankow, in barrels, is easier on spot at 92s. per cwt.; market is dull.

LUBRICATING, MINERAL AND BURNING OILS, ETC.—Conditions show little change on the week and business has been rather subdued. **BENZOL** continues easy as quoted: standard motor, 1s. 6d. per gallon, ex works, in tank wagons; crude 65's, 1s. 1½d.; pure, 1s. 11½d. **FUEL OIL** continues unchanged and generally quiet: 950 gravity, 24 5s.; 890 gravity, 24 15s. per ton, ex tank. **PARAFFIN WAX AND SCALE**.—Wax is steadier at about 2½d. to 4d. per lb., according to melting point, in bags. Scale is quoted for shipment from £16 per ton, c.i.f. U.K. port. **PARAFFIN OILS** are steady but rather quiet: American standard white, 1s.; water-white, 1s. 1d. per gallon, barrels free; Russian prime white kerosene, 6½d. to 7d., ex tank, 7½d. buyer's barrels filled free, and 11d. barrels free, ex wharf, London. **WHITE OILS** continue unchanged, with business quiet: special No. 1, £24 15s.; No. 1, £23 15s.; No. 3 half-white, £21 7s. 6d.; No. 4 half-white, £16 5s. per ton, drums and barrels free, ex wharf, London. **SOLVENT NAPHTHAS** have been quieter, but prices are unchanged: 90 to 160, 1s. 1½d. to 1s. 2d.; heavy 90 to 190, barely 1s. per gallon, naked at works. **PETROLEUM JELLIES** are fairly steady but rather quiet: white to snow-white, £38 to £53; amber and yellow, £18 to £23; dark stiff green, £12 5s. per ton, barrels free, ex wharf, London. **LUBRICATING OILS**.—The shipment and spot markets are unchanged; business on the quiet side: spot, pales, £10 to £23; reds, £12 7s. 6d. to £22 10s.; dark cylinders, £12 10s. to £23; filtered cylinders, £20 to £33 per ton, less 2½ per cent., ex wharf, London; lower prices for large quantities.

Exemptions from K.I.D.

THE Board of Trade have intimated that Exemption Orders for the following products have been signed by the Treasury, and that imports will be free from key industry duty on and from midnight, June 27/23, 1927, for a period ending March 6, 1928: Ammonium perchlorate; Dial (acid di-allyl barbituric); Elbon (cinnamoyl para-oxyphenyl-urea); Hydroquinone; integrators (planimeter type); R. lead acetate; Lipiodin; Phytin; planimeters; potassium guaiacol sulphate (Thiocol); Urea (carbamide).

Bulgarian Rose Oil Exports

THE official returns of Bulgaria's foreign trade, published by the Director-General of Statistics, show that exports of rose oil in 1926 totalled 3,065 kilos, valued at 207,379.782 levas, against 2,169 kilos, valued at 83,731,681 levas, in 1925. Rose oil was consigned to the following countries in 1926 in the amounts stated against each:—Great Britain, 189 kilos; Austria, 140 grams; Belgium, three kilos; Germany, 311 kilos; Italy, 13 kilos; United States, 569 kilos; Turkey, 180 grams; Hungary, 100 grams; France, 1,390 kilos; Netherlands, three kilos; Czechoslovakia, two kilos; Switzerland, 534 kilos; and other countries, one kilo.



Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

Insurance Dispensing Terms

SIR,—Mr. W. M. Tims will find the figures in the *C. & D.* "Westminster Wisdom" on June 11 (p. 726)—roughly 14,000,000 insured persons in England and Wales and 2,000,000 in Scotland.—Yours, etc.,

JAY MACK (27/6).

Ichthyol Suppositories and Pessaries

SIR,—In May 1908 I gave the result of certain experiments made with ichthyol and gelatin pessaries, and came to the conclusion that when made with a base like that of the glycerin suppository they could be kept six months and dispensed without fear of their insolubility. I recorded the following formula as an ideal one, somewhat in the nature of glycerin suppository base, if my memory is correct:—

Ichthyol	...	...	...	...	...	10
Glycerin	...	...	...	...	...	60
Gelatin	...	...	...	...	...	16
Water	...	...	...	...	...	14

The gelatin is soaked overnight in order that the curled edges may be softened. At the Hospital for Women, Soho Square, with which I was then associated, we made a 10-lb. mass each time; after some time they were made by a well-known firm of pill makers to the required formula with satisfactory results, and even to this day they are being used. I have obtained a fresh sample, and send it you for examination. In Italy and France they are extensively presented as Chaumel's Ovules. They replace the messy 10 per cent. tampons of glycerin and ichthyol, and grosses are used every year at the hospital with never a complaint. It is important that too much gelatin or water and glycerin be not used, but a strict adherence to the formula be observed.

Yours faithfully,

GEORGE ROE.

London, S.W.6.

Where is the Profit?

SIR,—Among the wealth of interesting matter which you present to us in your Special Issue it is most probable that the article which will appeal to retail chemists from a business point of view is the one describing a visit to the South-Eastern pricing bureau, and the impression left on one's mind is one of amazement at the elaborate machinery which it has been found necessary to evolve to pay the chemists' accounts. An item which apparently impressed the *C. & D.* man was the £1,200 value of seven parcels of scripts sent in by seven chemists in one month; without going into fractions, this means a cheque for each of them of about £40 a week. Not every script carries a fivepenny fee, as some of them are for dressings and uncompounded or tariff preparations, but for the purpose of dissection let us take each one at fivepence; then £20 represents 960 scripts a week or 160 each working day, and to get through this amount of work in anything like a proper manner would certainly require two capable assistants, with the chemist supervising and giving an occasional hand himself. It has been stated on many occasions by panel chemists that out of the fivepence, threepence must be allotted to overhead charges, so now we have all the data we require; gross weekly amount received by chemist £40, net amount £20, deduction for committee's expenses £2, overhead charges at 3d. a script £12; two assistants' wages at (£3) £6, chemist's part salary and—profit? The only people who can make the figures show a profit on paper are those who ignore certain factors in their working expenses or those who are content to give their own services for nothing.

Yours, etc.,

BUROT (27/6).

Nurses' Discounts

SIR,—The question of nurses' discounts is one which, as "Xrayser III" remarks (*C. & D.*, June 18, p. 761), may well be left to the discretion of the individual chemist to settle according to the conditions prevailing in his own locality. I see no reason why this custom, so long established in many businesses, should be discontinued; moreover, many of the proprietary houses in their terms set out the same discount, 10 per cent., as allowable to medical customers. At the same time, it seems to me that there is not nearly the same amount of business obtainable from this source as there was twenty or thirty years ago. With the growth of so many supply associations and small wholesale concerns which lay themselves out to deal with nurses direct, it is becoming more and more the rule for the nurse to obtain her requisites from these sources and to supply them to the patient herself, taking her own profit. This applies especially to maternity cases. I do not think that the question of the 10 per cent. is a very acute one; personally, I do not see why I should not still allow it to the one or two older nurses to whom I have always allowed it, and who still send me some of their patients. If we are to argue on the lines of a monopoly of medical supplies for chemists, small wholesalers are a far greater danger, and particularly those who, as pointed out by "Retailer" (*C. & D.*, June 18, p. 769), are retail chemists themselves, but are not above supplying little general stores with packed goods and proprietaries which we might really consider our own line of trade. It has often struck me that the people who do this kind of business are those who are most indignant about dispensing doctors and the sale of disinfectants and agricultural poisons by unqualified vendors. Can they not see that they are helping to destroy the chemists' case by their conduct?—Yours truly,

ETHICAL (28/6).

Opening on Early Closing Day

SIR,—Under the Local Reports of Insurance Act Dispensing (*C. & D.*, June 11, p. 727) it is recorded that the East Ham Insurance Committee decided to ask the Pharmaceutical Committee to state on what authority they based their claim that the Insurance Committee's instruction as to the opening of chemists' shops on Thursday evenings could not be enforced without infringement of the Shops Act. Now I am not in business in East Ham, so that I do not know what the Committee's instructions were, but this is a question which has given me, and doubtless many other panel chemists, a lot of worry and trouble, and perhaps at last the chemists of East Ham will get a definite pronouncement on the subject. In the first place I doubt very much if the Committee have any legal power to compel me to open in the evening of an early closing day provided I afford an adequate service during the ordinary hours of business, but we will let that problem pass for the moment and deal with the difficulties of opening. The Shops Act says that all persons employed in a shop shall have a half-holiday once a week; this does not necessarily mean on the early closing day for the town, but it must be on the same day each week; it cannot be changed about at will, and the day for each assistant must be displayed in the shop on the form laid down in the Act. Now this is all very well in a shop which closes up entirely on the half-holiday, or in businesses which employ a number of assistants and can arrange for them to take duty on alternate days, but in a chemist's business which is usually too small for such an arrangement it is very difficult to find a solution. Where the proprietor has only one shop he generally solves the problem by taking all the holiday duty himself, with the result that he never gets any time off, and it must be remembered that in the drug trade the question is complicated by the fact that it is legally compulsory to leave a qualified man in charge. Where a man is the owner of two or three shops running under managers it becomes more complicated still, for it means that he would have to send a relief man to each shop to release the manager; such a course might be possible for a very large company, but for the ordinary owner is financially impossible.—Yours faithfully,

SEPTEMDIEM (18/6).

D D

Legal Queries

C. S. C. (18/6).—The label for the tablets would not be liable to medicine-stamp duty if sold by a chemist or a person holding a patent medicine licence. The article benefits by the "entire" drugs exemption.

D. D. A. (6/6).—No legal offence is committed by anyone in writing out an order for drugs covered by the Dangerous Drugs Act, providing the medical man duly signs the order and thus assumes full responsibility.

M. P. S. (17/6).—The proposal you make regarding the opening of a drug store is risky, because of the assumption that a registered chemist would naturally be supposed to be carrying on "the business of a chemist and druggist." There has been no law case to decide the meaning of this, but the Society are looking out for a suitable one to take into Court.

M. & S. H. (20/6).—The company should be registered under the Registration of Business Names Act, as the alteration you propose in the title embodies more than the actual surname and christian name or initial of the person carrying it on. As the company is not a limited one you cannot carry on a retail business in the sale of poisons, even although you employ a qualified chemist. The provision referred to only applies to corporations.

C. B. (20/6) bought goods from a firm whose invoice, which arrived with the goods on May 25, had printed on it: "Terms: net, 30 days." On June 2 he received from the firm an account upon which was printed: "Terms: net, 10 days." "C. B." pointed out the inconsistency to the firm, who replied that the quotation "net, 30 days" is made on the assumption that customers will order early in the month; but that settlement is due ten days after receipt of monthly statement. What is our opinion? [In our view, "C. B." is entitled to a full thirty days' credit. If the firm's terms are "net, 10 days after receipt of monthly statement" they should say so on their quotation and invoice.]

Salisbury (11/6).—Under his will a testator left a sum of money to each of his children, and upon the death of any child the money was to go to his or her issue. Before the death of the testator, many years ago one of his children went to America and disappeared. About twelve years ago, a claim to this child's share was put forward by a person who claimed to be his son. The trustees asked for certain proofs in support of this claim, and as they were not forthcoming the money was not paid over. Since then nothing has been heard of the child who went to America or of any issue of his, and the trustees still hold his share of the estate. They are anxious to dispose of this money and be discharged from their trusteeship; how should they proceed? [In our opinion their only safe course is to get a release through the Chancery Court, and we advise them to place the matter in the hands of a solicitor. The Court will direct what inquiries, by advertisement and otherwise, shall be made for the missing child and any issue he may have left, and after this has been done it will be possible for the trustees to wind up the estate.]

Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

L. H. T. (31/5).—We have not heard of the use of aspirin for overcoming sensitiveness of the throat. Aspirin is not sufficiently soluble in water to make a spray solution, but calcium acetylsalicylas solution freshly made doubtless would be suitable.

W. E. A. (31/5).—TATTOOING INK.—The results obtained in tattooing with inks depend upon the fineness of the division of the carbon more than the medium. Carbon is unaffected by light, but if aniline dye is added fading may occur. The genuine Indian and Chinese inks are made by a complicated process which is not fully

known, but the aim of the makers in this country is to obtain the carbon in as fine a state as possible. Artists' black in liquid form, as sold by artists' colourmen, is good for tattooing, but probably too expensive for use in marking animals.

A. F. N. (1/6).—It is not possible for us to reply definitely to your inquiry as to what the doctor meant by "liq. suprarenal." We suspect he had in mind the adrenalin preparation of a particular manufacturer.

J. A. G. (1/6).—PLASTER OF PARIS.—It is the mucilaginous matter in pulv. althææ to which are due its properties of delaying the setting of plaster of Paris when it is mixed with it.

B. I. C. (3/6).—DISPENSING FOR DOCTORS.—The best basis to charge for dispensing prescriptions for a medical man is the one frequently adopted with satisfaction to all concerned, viz., cost of drugs as in the *C. & D.* Retail and Dispensing List, and a charge of 6d. as dispensing fee.

R. W. (4/6).—TWILIGHT SLEEP is quite safe in skilled hands. It requires constant attention from the doctor in charge, who therefore demands much larger fees than a confinement conducted in the ordinary way. It does not affect the infant's physical or mental development.

H. G. (6/6).—BOSTON CREAM.—

Sugar	1½ lb.
Citric acid	½ oz.
Cream of tartar	1 dr.
Juice of lemons	3
Water	15 oz.
White of eggs	2
Lemon essence	q.s.

Of this one or two tablespoonfuls is mixed with a tumbler of water and a pinch of bicarbonate of soda stirred in.

G. R. B. (7/6).—An unqualified assistant of twenty-one years of age is worth just what his abilities can fetch. Without some knowledge of these the remuneration can only be stated on the basis that the intrinsic value of any assistance at a seasonal resort is worth from 40s. to 60s. weekly, dependent on his capacity and experience.

E. H. G. (8/6).—A student who has reached the age of twenty years should be certainly thinking of going to college. It is better, in our opinion, to forgo the further twelve months' shop work and start technical studies at once. The young man should have got through Part I of the examination at least twelve months ago.

R. & J. T. (17/6).—(1) The expired patent for Lysol (1017 of 1890), which can be obtained from the Patent Office, describes the manufacture of that article. (2) The manufacture of invalid and infants' foods is dealt with in "Pharmaceutical Formulas," but that work is now out of print.

Retrospect of Fifty Years Ago

Reprinted from

"The Chemist and Druggist," July 14, 1877.

The Plymouth Conference

Pleasant anticipations are conjured up by the receipt of the twin circulars which direct attention to the annual gathering of the British Pharmaceutical Conference. It is to be held this year, as probably all our readers know, at Plymouth: the date is fixed for August 14, and the place of meeting is the Athenæum. We need not enlarge upon the programme, as it is already in the hands of every member; still less need we state that the proceedings of the association will be under the effective and kindly guidance of Professor Redwood. Mr. Robert J. Clark, the local secretary, has issued a tempting and remarkably attractive sketch of the natural beauties to be found in that charming region, where hill and dale and moorland give an unrivalled character of loveliness to the West of England. Positively to many of us the Conference will not come a day too soon, and no one is better entitled than the hard-worked pharmacist to snatch a brief relaxation from his exertions. The whole world, says Thackeray, drifts into August, and in that happy month man is at liberty. In that month may now be included even the chemist and druggist.



[Commenced C. & D., July 5, 1924]

Labels for Shop.—Chemists' shopfitters and other wholesalers publish lists of labels suitable for labelling shop rounds, jars, and drawers. Such a list for a well-stocked shop would contain the names of about 800 items, but perhaps half this number would suffice for labelling the stock of drugs in a newly opened business (see "Starting a Business," *C. & D.*, I, 1924, p. 603). Labels for shop rounds and jars are of two types, "recessed" and "stick-on," and two styles of the latter are usually found—block letter with vermilion border, or Roman letter with sienna border. Recessed labels may be affixed with a cement composed of resin 2 parts, yellow beeswax 1 part (liquefy by heat, and mix), applied to the bottle and label previously warmed. Paper labels for drawers are stuck on with ordinary paste, and when dry are coated with a solution of isinglass (see "Pharmaceutical Formulas," p. 522) and varnished. For labels for shop rounds the adhesive should be fish glue or acetic solution of gelatin. When dry, the labels are sized with a solution of gelatin and painted over with hard spirit varnish. Recessed labels are obviously safer than paper or gold-leaf labels for bottles containing strongly spirituous liquids, acids and so forth; but it does not follow that all the bottles, jars and drawers in the shop should have labels of this type.

Label-storing Cabinets.—These comprise a number of drawers, each of which is divided by means of thin wood into compartments sufficiently large to hold a quantity of labels when flat. If one kind of label is kept to a division the name of the label can then be seen at a glance. With the exception of dispensing labels, which are similarly stored in a smaller cabinet near the dispensing counter, it is advisable to have a cabinet sufficiently large so that all the slip labels for "drys" are in one drawer (in alphabetical order), those for "wets" in another and those for packed goods in other drawers. For the last-mentioned the compartments will need to be fairly large.

Laboratory Furnishing.—Among the first considerations in fitting out a laboratory is the nature of the material to be used for the top of the working benches and for the floors and walls. In the majority of cases wood impregnated with paraffin wax or oil is employed for the first-named. Cost often governs the kind of wood selected, as there is a great difference between that of teak or mahogany and deal. Among other materials used are ferro-concrete, sheet lead (on a wooden base), slate and tiles. For floors, concrete, with or without wood or linoleum covering, is satisfactory, but if a magnesium oxychloride cement is used this should not come in contact with metal-work. At the rear of steam pans it is advisable to have a gutter running to a drain, as this facilitates the clearing away of any liquids spilled or which boil over. For the walls, glazed bricks or tiles are ideal, though ordinary bricks distempered have proved satisfactory. In the case of shelves, consideration has to be given to the corrosive nature of some of the chemicals, and among the materials which may be selected are wood, beaver board, plate glass and slate, while in certain cases a rubber mat or piece of linoleum may be advantageous as a cover. The chief materials at present in use as the base of fume cupboards, as well as the tops of furnace benches, are slate, lead sheet, tiles, and stone. For the former wood is probably the most satisfactory. Earthenware is the best material for sinks and waste pipes. Other matters to be considered are electricity, vacuum, water, steam, and gas. The pipes for these should be placed in easily accessible positions, with in each case one or more places at which

the supply can be cut off. The following is among the apparatus in frequent use in a laboratory: Albuminometers, alcoholometers, autoclaves, balances, beakers, bell-jars, blow-pipes, blue glass, brushes (test-tubes), burettes, Bunsen burners, centrifugal machines, charcoal, cork borers, corks, crucibles, crucible tongues, desiccators, dialysers, drying ovens, evaporating dishes, files, filter papers, flasks, forceps, funnels, glass tubing, hydrometers, indiarubber stoppers, indiarubber tubing, lactometers, litmus books, measures, mortars and pestles, nitrometers, pans (steam-jacketed), percolators, pipettes, platinum wire and foil, presses (filter and tincture), refractometers, retorts and stands, sand baths, separators, sieves, spatulas, stills, stirring rods, test-tubes and stands, thermometers, tintometers, viscometers, water-baths, watch-glasses, weights, wire triangles. The reagents used in chemical analyses are usually employed in solution, and a list of those in general use is given in the British Pharmacopœia. It is desirable that small quantities of the reagents in frequent use should be on shelves before the operator. These include: Acetic acid, strong and dilute; hydrochloric acid, strong and dilute; nitric acid, strong and dilute; sulphuric acid, strong and dilute; and solutions of ammonia, strong and dilute; litmus (10 per cent.); methyl orange (0.2 per cent.); phenolphthalein (0.2 per cent.); ammonium carbonate; ammonium chloride; ammonium hydrosulphide; ammonium molybdate; ammonium oxalate; ammonium phosphate; barium chloride; calcium chloride; ferric chloride; lime; potassium chromate; potassium hydroxide; potassium iodide; potassium permanganate; silver nitrate; and sodium hydroxide. Another important part of the laboratory equipment is the library, and a list of suitable books may be selected from *The Chemist and Druggist Diary*, 1927.

Laburnum Seed: Poisoning.—The active principle of *Cytisus Laburnum* is the poisonous alkaloid cytisine; it is found in all parts of the plant, but the chief danger arises from children eating the seeds. The antidotes are an emetic (such as vinum ipecac.), stimulants (coffee, spt. ammon. aromat.), hot baths, hot and cold douche to the head, and, if necessary, artificial respiration. This is a typical instance of an article not being regarded as a poison until it is prepared for use.

Lac.—See Shellac.

Lactometers.—In design these are similar to hydrometers (q.v.), but the scale of degrees is so indicated as to render the instrument suitable for testing milk and cream.

Lagos.—See Nigeria.

Lambing Medicines.—Chemists in country districts are frequently called upon during the lambing season to prescribe for ailments relating to parturition, such as heaving, straining and after-pains. For straining ewes, it has long been the custom to supply oleum viride, but an improvement on this is one drachm of carbolic acid to six ounces of oil, either "viride" or "rubrum." An oil coloured with alkanet, to which a few drops of origanum has been added, may be made a profitable and effectual proprietary preparation. As a straining draught, a mixture of tr. opii., spt. æth. nit., æther., and ol. ricini, to be given in a little gruel, may be supplied. Chlorodyne may be substituted for the opium. Another remedy often asked for is a lambing drench; a representative formula for this is magnes. sulph. ʒiv., sodii sulph. ʒiv., diapente, ʒij., potas. nit. ʒj., sulphur. ʒj., fer. perox. ʒss. The dose is one ounce, given in gruel. Diarrhœa, termed "white scour" in lambs, is a common complaint; the lamb should not be given milk unless it is boiled, and a volatile stimulant should be administered to sustain the animal, as well as a powder or mixture containing catechu, chalk and pulv. kino co. Older animals should also be given castor oil. For inflammation of the udder (garget) an ointment containing camphor and mercury should be supplied (the lamb must not suck an udder so treated). In the event of an accoucheur requiring a "medicine chest," the following, with doses and directions, should be supplied:—Mag. sulph., ol. ricini, ol. lini, ol. tereb., ol. olive, ac. carbol. pur., ol. carbol. (1 in 40), catechu, spt. æth. nit., tr. opii (diluted), creta præp.,

The C.&D. Commercial Compendium

glycerin., spt. ammon. arom., æther, chlorodyn., pulv. gent., pulv. zingib., lysol. In cases of joint-ill, embrocation, bandages and tonics are needed, and it is essential that the animal be kept warm and dry. Further details of the ailments affecting lambs and sheep are given in "Veterinary Counter Practice." In preparing the various mixtures it should be remembered that they can be rendered more attractive by the use of flavours, colours, boxes and labels which appeal to the eye and perhaps to the nostril.

Lamellæ as Poisons.—The lamellæ of the British Pharmacopœia are those of atropine, cocaine, homatropine and physostigmine. Cocaine lamellæ come within the Dangerous Drugs Act, and the others are Part I poisons, and may only be supplied subject to the conditions attached to that part of the Schedule. The combination of cocaine and homatropine (and similar mydriatic alkaloids) also comes within the Dangerous Drugs Acts. Other Part I poisons dispensed as lamellæ are dnoisine, hyoscine and hyoscyamine.

Laminaria Tents.—Laminaria or sea tangle tents are sometimes used instead of sponge tents for the purpose of dilatation in gynæcology and surgery. Made from a seaweed, *Laminaria digitata*, these swell to three times their diameter in the dry state. The laminaria is sterilised by drying after immersion in acetone, chloroform or alcohol (90 per cent.) under pressure at a temperature of 133° C. Another method of sterilising is to place the laminaria in ether saturated with iodoform.

Lampblack, Carriage.—Although spontaneous ignition of lampblack is of extremely rare occurrence, the possibility of its taking place cannot be entirely dismissed from consideration. It is therefore suggested by the Board of Trade that special stowage in the vicinity of the hatchways, and where it is protected from the wet, should be provided. Printed paper should not be used in connection with the packing of lampblack, but when put in paper parcels and packed in casks, or in casks simply lined with paper, or in cases or drums, it may be carried on board ship with comparative safety.

Lamps, Outside.—By-laws for the regulation of lamps, signs, or other structures overhanging the public way are formulated by some local councils. These by-laws generally require chemists and other shopkeepers to obtain the sanction in writing of the local authority for the proposed erection of one of the above outside structures, for which certain dimensions may be specified. The regulations may set out the height at which the lamp or the like shall be above the surface of the pavement immediately under it, and how far it shall project from the wall or front shop of the premises or the post or upright support to which it is attached. The weight of a lamp may be specified, and in some cases no advertisement, device or writing, except the name of the premises and occupier, and nature of the business, may appear thereon.

Landlord and Tenant.—The relationship of landlord and tenant arises whenever one person grants to another an interest in land or premises of less duration than he himself enjoys. The duration of the lease or tenancy thus created may be any period of which the end is fixed or ascertainable. Generally speaking, any person who is capable of entering into a binding contract is able to be a landlord or a tenant. If one of the parties to a lease is not of full age the lease is not necessarily void, but the infant can, upon attaining his majority, either repudiate or ratify it. A lease for any period not exceeding three years at a rent of at least two-thirds of the full annual value of the premises may be made either verbally or in writing. Consequently a weekly, monthly, quarterly, or yearly tenancy at a normal rent is valid, even if it is arranged orally; but it is usual in practice and always wiser to have a written agreement. A lease for a longer period than three years or for a shorter period at a rent that is less than two-thirds of the "rack" rent must not only be in writing

but must be by deed, that is to say, under seal. Nevertheless, a document that is invalid as a lease because it is not a deed, may, if in writing, be a binding agreement for a lease and, for all practical purposes, operate as a lease. Unless by the terms of his tenancy a tenant is expressly debarred from doing so, he may assign the whole of his interest in a lease to some other person or may grant a sub-lease of the property for some period short of that for which he holds it. In the latter event, however, he will remain liable to his landlord if the subtenant makes default in payment of rent or observance of the conditions of the tenancy. A tenancy for a fixed period terminates automatically at the end of the term specified and cannot be terminated earlier unless both landlord and tenant agree or the lease makes provision for putting an end to it sooner. As a rule, a lease or tenancy agreement for a continuing period contains a clause prescribing what length of notice must be given if either party wishes to terminate the tenancy; but where no provision is made upon this point the length of notice to be given depends upon the circumstances. A "tenancy at will," as it is called, may be ended at any time by either landlord or tenant. This form of tenancy is comparatively rare, although it sometimes occurs; for example, when an employer allows an employee to occupy premises while in his service. Weekly, monthly and quarterly tenancies are terminable by a week's, a month's, or a quarter's notice respectively. A yearly tenancy or tenancy from year to year can be terminated by six months' notice, which must, however, expire at the end of one of the years of the tenancy. It must not be assumed that because the rent is payable quarterly that the tenancy is a quarterly one, as the rent is usually paid in that way under a yearly tenancy. When a tenancy has been created verbally it may be terminated by verbal notice; but even in that case a written notice is preferable, and in other cases it is essential. If a landlord gives notice that is defective because it is too short, or for any other reason, the tenant can ignore it; if a tenant leaves without giving the requisite notice or before the tenancy comes to an end, the landlord can recover the rent that would have been payable in the interval had proper notice been given or had the tenancy run its course. If the tenant refuses to give up possession when he ought to do so, the landlord must take proceedings for ejectment. As a rule, in the absence of special agreement, rates levied by local authorities are payable by the tenant; but charges for paving, lighting, drainage, etc., must be borne by the landlord, and if they are collected, in the first instance, from the tenant, as occupier, he may deduct them from the rent in the same way as he may deduct landlord's property tax. Landlord's property tax must always be paid by the landlord; but most other charges may be thrown upon the tenant by agreement. It is usual for the lease to prescribe what repairs the landlord and the tenant, respectively, shall be responsible for; otherwise, the landlord is not liable to do any repairs, and the tenant is, as a rule, only bound to keep the premises "wind and water tight." However, in the case of houses of low rent, let for occupation by the working classes, there is an implied obligation on the part of the landlord to put them into a habitable condition. If premises are burnt down or rendered uninhabitable by fire during the period of a lease, the tenant remains liable to pay the rent unless he is excused from doing so by a clause in the lease. At the present time, by virtue of the Rent Restrictions Acts, 1920 and 1923, there are restrictions upon the right of a landlord to increase the rent or to recover possession of dwelling-houses of which either the standard rent or the rateable value is not above £105 in London, £90 in Scotland, or £78 elsewhere.

Larceny.—The offence popularly known as theft is called in law larceny. It takes many forms; but the essence of the offence is the appropriation of someone else's property with felonious intent. The maximum punishment for simple larceny is penal servitude for a term of five years; but heavier penalties are prescribed for special forms of larceny.



Indigestion

1 of 4
Standard
Preparations

giving you a
PROTECTED PROFIT
of nearly **100%**

Cost 9/- Doz.

Sell 1/3 (P.A.T.A.)

Larger size 24/-

3/3 P.A.T.A.



BISMUTH DYSPEPSIA TABLETS
IODISED THROAT LOZENGES
CINNAMON INFLUENZA TABLETS
FORMALIN THROAT LOZENGES

BONUS OF 1 DOZEN WITH EACH GROSS (Assorted if preferred) for
WINDOW DISPLAY. ATTRACTIVE SHOWCARDS SUPPLIED.

MEGGESON & CO., BERMONDSEY
LTD., LONDON, S.E.16

130 YEARS' REPUTATION FOR QUALITY.

Experience does count.

ORGANO-THERAPEUTICAL PREPARATIONS

Sexaglandine Tablets

Male

Each tablet contains:

Orchitic...	gr. $\frac{1}{2}$
Thyroid...	gr. $\frac{1}{4}$
Prostate...	gr. $\frac{1}{2}$
Suprarenal...	gr. $\frac{1}{4}$
Pituitary...	gr. $\frac{1}{5}$
Cerebral...	gr. $\frac{1}{2}$



Female

Each tablet contains:

Ovarian...	gr. $\frac{1}{4}$
Thyroid...	gr. $\frac{1}{4}$
Thymus...	gr. $\frac{1}{2}$
Suprarenal...	gr. $\frac{1}{4}$
Pituitary...	gr. $\frac{1}{5}$
Cerebral...	gr. $\frac{1}{2}$

THESE TABLETS ARE INDICATED IN CASES REQUIRING FUNCTIONAL STIMULATION ARISING FROM GLANDULAR DEFICIENCY OR IRREGULARITY.

Full List and Particulars on Application.

DUNCAN, FLOCKHART & CO.
EDINBURGH & LONDON (155 Farringdon Road E.C.1)

GLYCERINE

The chemically pure glycerine supplied by us is guaranteed to comply with all the requirements of the Food and Drugs Act and the British Pharmacopoeia.

PRECIPITATED CHALK. Finest and lightest, also heavy grades.
COD LIVER OIL. (Finest Lofoten.)
CASTOR OIL. **OLIVE OIL.**
DECOLORISING CARBON.
PERSULPHATES: Ammonium, Potassium & Sodium.

HALLER & PHILLIPS, LTD. (Established as GEO. HALLER & CO., in 1878)
Mildmay Chambers, 69 Bishopsgate, London, E.C.2.
Phones: London Wall 4456/7. Tel. Add.: "Haloid, Stock, London."

ENGLISH

DRIED ROOTS, HERBS, Etc.

WHOLESALE QUANTITIES ONLY

Dandelion Root	Agrimony Herb
" Cut	Broom Tops Cut
White Bryony	Meadowsweet
Yellow Dock	Mouse Ear
Colchicum Corms	Nettles
" Seeds	Parsley Piert
Elderflowers	Red Centaury
Clover Flowers	Self Heal
Elderberries	Wood Sage
Bittersweet Twigs	Yarrow, etc.

For full lists with terms apply

J. Flemons & Sons (Herb Merchants) Dunstable

BURKETT, SHARP & CO., LTD.
DRUGS **8 HARP LANE** **CHEMICALS**
LONDON, E.C.3

**ACID
SALICYLIC**

Warrington Chemical & Drug Co., Ltd.
Paddington, nr. Warrington.
Telegrams: "Salicin, Warrington."

PARA AMIDO PHENOL

**SODA
SALICYLATE**



ACID HYDROFLUORIC

HYDROKINONE

ACID PYROGALLIC

PHENOLPHTHALEIN

HEXAMINE

We offer PROMPT SERVICE for all PHARMA-
CEUTICAL, GENERAL and PHOTOGRAPHIC
CHEMICALS, also CRUDE DRUGS.

Send us an enquiry.

JOHNSON & SONS

Manufacturing Chemists, LTD.

HENDON,
LONDON, N.W.4.

Telephone: HENDON 2070.

12 QUEEN STREET,
MANCHESTER.

JAPANESE


QUININE

B.P. 1914
SALTS

Manufactured by

HOSHI PHARMACEUTICAL CO., Ltd., TOKYO, JAPAN.

STOCKS IN LONDON

SOLE DISTRIBUTORS:

RALPH L. FULLER & CO., LIMITED,

Phone: Royal 1677-1678 21 Harp Lane, London, E.C.3. Wires: "Ralfuller, London."

ALKALOIDS "SANDOZ"

ARECOLINE HYDROBROMIDE
ARECOLINE HYDROCHLORIDE

ATROPINE PURE
ATROPINE SALICYLATE
ATROPINE SULPHATE

COLCHICINE PURE
(Cryst. & Amorph.)

COTARNINE HYDROCHLORIDE
COTARNINE PHTHALATE

ESERINE SALICYLATE
ESERINE SULPHATE

HOMATROPINE PURE
HOMATROPINE
HYDROBROMIDE
HOMATROPINE
HYDROCHLORIDE
HOMATROPINE SULPHATE

HYOSCINE HYDROBROMIDE
HYOSCINE HYDROCHLORIDE

HYOSCYAMINE: All Salts of

PILOCARPINE PURE
PILOCARPINE

HYDROCHLORIDE
PILOCARPINE NITRATE

SCOPOLAMINE
HYDROBROMIDE

STRYCHNINE: All Salts of

VERATRINE

YOHIMBINE HYDROCHLORIDE

Full particulars and quotations may be obtained from our Agent for Great Britain:

H. W. BRAUN

16 Water Lane, Great Tower Street, London, E.C.3.

Telegrams: Ilchembrau, Bilgate, London.

Telephone: Royal 7076.

THE SANDOZ CHEMICAL Co., Ltd.
Canal Road, BRADFORD.

GENUINE

RASPBERRY VINEGAR

(ARNFIELD)

CONTAINS NO PRESERVATIVES

Fully guaranteed

- (i) To meet the requirements of the Food and Drugs Act and also
- (ii) The new Pure Food regulations.

Made from genuine Fruit Juice and pure cane sugar, supplies will keep indefinitely without fermentation or deposit. Sold in casks, carboys and Winchester quarts, sample and quotation will be sent on receipt of enquiry stating quantity required.

J.C. ARNFIELD & SONS
LIMITED.

Manufacturing Chemists,
GADSBY WORKS, PRINCES ST.
STOCKPORT. Established 1786.

Telephone: 601 (2 lines) Pr. Bch. Exch.
Telegrams: Chemicals, Stockport.

LEVER'S GLYCERINE

Best for all pharmaceutical and industrial purposes

Our chemically pure glycerine is guaranteed to comply with all the requirements of the Food and Drugs Act and the British Pharmacopœia

Write for free sample to

LEVER BROTHERS LIMITED
Glycerine Dept., A, 46 Chancery Lane, London, W.C.2
LG 9-2004

HOPKIN & WILLIAMS

LTD.

FINE CHEMICALS

16 & 17 Cross Street,
Hatton Garden, E.C.1.

ALKALOIDS

Fine Chemicals Opium Derivatives

ALOIN	DIAMORPHINE	LEPTANDRIN
ATROPINE	EMP. CANTH. LIQ.	MORPHINE
BISMUTH SALTS	ERGOTIN	OPIUM
CAFFEINE	ESERINE	PODOPHYLLIN RESIN
CANTHARIDIN	ETHYLMORPHINE	SALICIN
CAPSICIN	GINGERIN	SANTONIN
CHLOROFORM	HYOSCYAMINE	SCAMMONY RESIN
CHRYSAROBIN	IRIDIN	STRYCHNINE
CODEINE	JALAP RESIN	VERATRINE

Goods covered by Dangerous Drugs Acts offered subject to all regulations.

T. & H. SMITH L^{TD}

BLANDFIELD WORKS : 25 CHRISTOPHER STREET : 32 & 34 VIRGINIA STREET
EDINBURGH. : LONDON, E.C.2. : GLASGOW.

ESTABLISHED 1827

BRADY & MARTIN, LTD.
OFFER TO
NORTHERN PHARMACISTS

PROMPT SERVICE—KEEN PRICES—
GOOD QUALITY.

GALENICALS, including GOD LIVER OIL
EMULSION, MALT EXTRACT, PILLS,
TABLETS, etc.

Well-known Specialities :

HEPATISAL : CASCARIENT
KRITHOVOL : SEPTOPHON

Enquiries invited for best terms, and
special quotations given for quantity.

Telegrams - "Martin, Newcastle-upon-Tyne."
Telephones - - - - Central 5168 & 5169.

NORTHUMBERLAND ROAD
NEWCASTLE - UPON - TYNE

PUBLIC HEALTH REGULATIONS

(Preservatives in Food. Rules and Orders).

JANUARY 1st, 1927.

OURY, MILLAR & CO.'s

PURE FOOD

(Complying with Latest Requirements)

GELATINES

PURITY, CLARITY, STRENGTH ALWAYS
CONSISTENT.

All grades of sheet, powder and
FINE LEAF GELATINES.

OURY, MILLAR & CO.,
9 Mincing Lane, London, England.

Telegrams :
"Olmentu, Fen, London."

Telephone :
Royal 5871-2.



Hubbuck's Pure Oxide of Zinc

is made by sublimation, and is warranted to contain upwards of

99.5 PER CENT.

of pure oxide; in fact, the impurities are not traceable.

Thos. Hubbuck & Son, Ltd.

ESTABLISHED 1765

24 Lime Street, London, E.C.3.

MANUFACTURERS OF WHITE LEAD, WHITE ZINC, PAINT, OILS, COLOURS, VARNISHES, &c.

Australian Office: 34 Queen St., Melbourne.

Sold by the following Wholesale Druggists in Boxes of 7 lb. and 14 lb. stamped by the Manufacturers; also in 1-lb. Boxes and 1-lb. Glass Bottles.

Allen & Hanbury (Llm.)
Ayrton, Saunders & Co. (Llm.)
Bell, Jno., & Co.
Bleasdale (Llm.)
Boots Pure Drug Co. (Llm.)
British Drug Houses (Llm.)
Burgoyne, Burdidge & Co.
Butler & Crispe (Llm.)
Clay, Dod & Co.
Cockburn & Co. (Llm.)
Corby, Stacey & Co. (Llm.)
Dakin Brothers
Duncan, Flockhart & Co.
Evans, Gadd & Co. (Llm.)
Evans Sons, Lescher & Webb (Llm.)
Ferre & Co.
Gale & Co.
Glasgow New Apothecaries Co.
Goodall, Backhouse & Co.
Harker, Stagg & Morgan (Llm.)
Harkness, Beaumont & Co.
Hartick, W. & R., & Co.
Hirst, Brooke & Hirst.

Hodgkinson, Prestous & King
Horne & Sons
Huskisson, H. O., & Co.
Inman's Stores (of Edinburgh)
Loffhouse & Saltner (Llm.)
Mackay, Jno., & Co. (Llm.)
May, Roberts & Co., Ltd.
Oldfield, Pattinson & Co.
Pinkerton, Gibson & Co.
Potter & Clarke (Llm.)
Raines, Clark & Co.
Raines & Co.
Rankin & Bortan
Silversides, R. B. G.
Smith, T. & H., (Llm.)
Southall Bros. & Barclay
Sumner, R., & Co.
Thompson, John, (Llm.)
Wilkinson & Simpson (Llm.)
Willows, Francis, Butler & Thompson (Llm.)
Woolley, Jas., Sons, & Co. (Llm.)
Wright, Layman & Umney (Llm.)
Wyleys (Llm.)

Barry, F. J., New York
Finlay, Hicks & Co., New Orleans
E. Fougere & Co., 90/92 Beekman Street, New York
Chas. L. Hulaking, Inc., 5 Platt Street, N. York
Lehn & Fink, Inc., N. York

McKesson & Robbins, Inc. New York
Math Brothers & Co., Baltimore
Roller & Shoemaker, Philadelphia
Schiffella & Co., Inc., New York
Shoemaker & Busch, Philadelphia

MATTHEWS & WILSON Ltd.

Manufacturing Chemists,

6/8 Cole St., LONDON, S.E.1

FOR ALL

PILLS & TABLETS

BY THE GROSS,
THOUSAND OR MILLION.

THE BEST HOUSE FOR

**ASPIRIN
CASCARA**

AND ALL TABLETS IN BULK.

Write for samples and prices before buying.
Superior machinery and scientific control.

R. GIBBINS & CO.

1 BIRKBECK ROAD, KINGSLAND, LONDON, E.8.

“CEPHOS”

The Physician's Remedy for Headache, Neuralgia, Neuritis, Rheumatism, and Influenza.

Liberal Trade Terms
Powerful Advertising

Sole Proprietors:
**CEPHOS, Ltd.
BLACKBURN.**

Powders and Tablets
Retail at 1/3 and 3/-

COCAINE "MERCK"

H. R. NAPP LIMITED, 3 & 4, Clements Inn, LONDON, W.C.2.

ESTABLISHED 1772

HENRY'S CALCINED MAGNESIA

Continues to be prepared with scrupulous care, in the greatest chemical purity, by
Messrs. THOMAS & WILLIAM HENRY, 11, East Street, St. Peter's, Manchester.
And is sold in Bottles, authenticated by a stamp bearing their name. Trade Mark, "Henry's Calcined Magnesia."
New York: Messrs. SCHIEFFELIN & CO. William Street. **PRICE 2s. 9d.** Paris: Messrs. ROBERTS & CO. 5, Rue de la Paix.



TRADE MARK
REGISTERED
NO. 462,940

"SPETON"

Originally known to the
Medical Profession as
"SPERMATHANATON."

Entirely free of Quinine and Cocoa butter

ANTISEPTIC PROPHYLACTIC TABLETS

Manufactured by (New English Registered Packings of 12 Tablets) Sole Agents for U.K. & British Colonies,
The Temmler Chemical Works, Berlin. **COATES & COOPER, 41 Gt. Tower St., London, E.C.3**

QUININE

QUINIDINE
CINCHONINE
CINCHONIDINE

and

SALTS

Sugar-coated Quinine Tablets and Pills.

Gelatine-coated Oval Pills.

BANDOENG
JAVA

BANDOENG QUININE FACTORIES

AMSTERDAM
De Wittenkade 48-50.

Telegrams: "Kininefabriek Bandoeng."

Samples, prices and particulars on application.

Telegrams: "Semadmy Amsterdam."

Chloral Hydrate

Tannic Acid

Gallic Acid

Lithium Salts

Hydrogen Peroxide

Phenolphthalein

Hydroquinone

Ammonium Persulphate

Potassium Persulphate

Fine Chemicals

Alkaloids

Guaranteed Reagents

Specify "Merck"
Merck's Chemicals are the
Standard and cost no more

H. R. NAPP LIMITED, 3 & 4, Clements Inn, LONDON, W.C.2.

**GENOXIDE LINES THAT
LEAD for PURITY
& PROFIT**

Genoxide



**PEROXIDE
OF
HYDROGEN**

"B.P. for Purity, Stable to the last drop."

In three popular sizes retailing at

4 oz. - 1/-
8 oz. - 1/6
16 oz. - 2/6
P.A.T.A.

Special Window Displays.

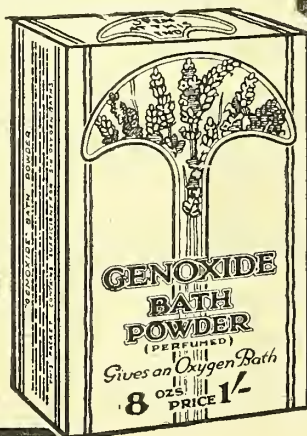
Advantageous Trade Terms.

GENOXIDE BATH POWDER

A genuine Oxygen Bath Powder. Subtly perfumed, fully effective and packed in attractive cartons. "Genoxide" Bath Powder sells at popular prices which will increase the demand for medicated Bath Powders.

RETAIL PRICES:
8 oz. - 1/-
16 oz. - 1/9

Terms to Trade:
7/- per dozen 8 oz. packets; 12/- per doz. 16 oz. packets



GENOXIDE LTD.
LUTON.

The P.A.T.A. Its Value to the Trade

THE MANUFACTURER OR OWNER of an article which is on the P.A.T.A. List is assured of the goodwill of the distributing trade, which appreciates his action in providing a guaranteed rate of profit on the sales of his proprietary.

The WHOLESALE benefits by the P.A.T.A. in that he is no longer afflicted by the "cutting" of wholesale prices, which years ago was prevalent in the trade.

The RETAILER. The advantages to the retailer of the P.A.T.A. need no stressing. Thirty years ago practically every proprietary article had to be sold at "cut" prices, or general business was lost.

To-day the preparations of some 440 firms (nearly 3,000 separate articles) are on the P.A.T.A. List.

This means that on these articles the retailer receives a fair and guaranteed rate of profit.

Manufacturers of
PROPRIETARY ARTICLES
(distributed by the Drug Trade)
who are not at present "on the P.A.T.A." are invited to join.

The subscription is 6 guineas a year

For particulars apply to the SECRETARY,
43 GORDON SQUARE, LONDON, W.C.1

Germolene Aseptic Soap

Display this Showcard

and link up your
window with our
**Huge Advertising
Campaign.**

An attractive Coupon Scheme is now being advertised in all the leading National Daily and Sunday Newspapers, also the more important of the Provincial Newspapers, and a brisk demand for Germolene Soap may be looked for.



(REDUCED FACSIMILE.)

Big Sale—Big Profit



This is your opportunity of immediate profit with the minimum of selling effort.

Make it easy for customers to exchange their coupons at your shop by displaying the above Special Offer Card. Your reward will be multiplied sales and substantial profits.

If you have not had particulars of the Germolene Soap Scheme, send a post-card for terms and display cards.

VENO DRUG Co. (1925) Ltd. MANCHESTER

Profit *for you on*

MACKENZIE'S

Back-ache & Kidney →
Liver →
Female →

PILLS

FOR PRICES AND TERMS WRITE TO

MACKENZIE'S MEDICINE CO., LTD.

Proprietors: **John Timpson & Co., Ltd.**
106 GOLDEN LANE, LONDON, E.C.

Telephone: Clerkenwell 4778.

Telegrams: "Porous, Barb, London."

Iglodine.

Can you say "Yes" when IGLODINE is requested?

IGLODINE is being advertised. The unfailing effectiveness of its action is going to make trial purchasers into IGLODINE enthusiasts.

Every Chemist should be prepared to supply IGLODINE—a dependable antiseptic, quick-selling and profitable.

Write for fullest particulars and terms—

The IGLODINE Co., Ltd., Pilgrim St., Newcastle-on-Tyne

PARKER'S

Sulfluid

PREPARATIONS (REGISTERED)

Specific for all parasitic diseases.
Non-corrosive. Non-poisonous.

SOLUTION — OIL — OINTMENT

PARKER, WARD & CO.

WINDSOR HOUSE, VICTORIA ST., LONDON, S.W.1
LABORATORIES - - - BOSHAM, SUSSEX

Brings Repeat Orders & Merits Recommendation

Prices

10½d. Size 8/6 doz.

1/3 Size 12/- doz.

3/- Size 27/- doz.

NET.

£2 lots Carr. Paid.

for Coughs, Colds, &c.

Licoricine

ACTS LIKE
MAGIC

Terms

5% discount for Order
of £6 and upwards.

Minimum Retail Prices

10½d. 1/3 3/-

£6 lots show a profit of
33½%

MANDALL & Co., Ltd., 17/23 Stepney Rd., Newcastle-on-Tyne



Petrolagar

(trade mark)

FREE TO THE RETAIL CHEMIST.

Until further notice we will allow you **ONE BOTTLE** of **PETROLAGAR FREE** with each single order for **ONE DOZEN** ordered from your wholesaler.



8½% MORE PROFIT FOR YOU.

Petrolagar is an ethical product which never has been advertised to the public.

We make this free offer as a special inducement to the retail chemists to carry ample stocks to meet the demand of the doctors with whom we are carrying on an intensive ethical advertising and detailing campaign for Petrolagar.

You may have **ONE 8-oz. BOTTLE FREE** with 1 doz. 8-oz. size, any assortment,

or
ONE 16-oz. BOTTLE FREE with 1 doz. 16-oz. size, any assortment (not a mixed dozen of large and small).

ORDER PETROLAGAR IN DOZEN LOTS FROM YOUR WHOLESALER.

DESHELL LABORATORIES LTD., 1-3 BRIXTON ROAD, LONDON, S.W.9.
PHONE: BRIXTON 1188.



Beecham's Pills

1s. 3d. size - 11s. 9d. per dozen
3s. 0d. " - 28s. 0d. "
5s. 0d. " - 54s. 0d. "

Beecham's Powders

1s. 3d. size (8 Powders) 11s. 9d. per dozen
5s. 0d. " (40 ") 54s. 0d. "

Less 2½% Cash Discount.

A further 5% allowed for Window
or other Advertising display.

Orders—Minimum Quantity FIVE POUND
(Assorted sizes, Pills and Powders).

PACKAGES FREE. CARRIAGE PAID.

TERMS: CASH WITH ORDER.

All communications to be addressed
and cheques made payable to—

BEECHAM ESTATES & PILLS LIMITED,
ST. HELENS, Lancashire.

VINT'S Menthols



WON'T Break Off!

EVANS SONS LESCHER & WEBB LTD.

J. M. SMITH & CO. (London) LTD.

OLIVE OIL B.P.
—
LIQUID
PARAFFIN B.P.
—

YOUR ENQUIRIES ARE INVITED

Hampton Chemical Works - Arthur Street, S.E.15

Kaylene (Colloidal Kaolin) -	3/-
Kaylene Dulcis - - -	3/-
Kaylene Saline - - -	4/9
Kaylene Mint - - -	3/9
Kaylene Lax - - -	4/3
Kaylene-ol - - -	5/-
Kaylene-ol c Phenolphthalein	5/6

COLONOL LIQUID PARAFFIN

20 oz. 4/-

„ „ „ 40 oz. 7/-

and in $\frac{1}{4}$, $\frac{1}{2}$, 1, and 2 Gallon Tins.

P.A.T.A. Special Terms for £5 Order.

Sole Agents for

"KAKRISPA" SWEDISH RYE BREADS

KAYLENE LIMITED

73 JUDD STREET, KING'S CROSS, W.C.1

Tel., MUSEUM 6804.

ALL CHEMISTS
SHOULD STOCK

ABDINE

THE GOLD MEDAL HEALTH DRINK.

Quick Seller. Big Profits. Over 50 years' Reputation.
"Abdine" is the most popular Health Drink. Perfectly safe for all ages.
Made from choicest fruits, it does not contain Epsom or Glauber Salts. Year
after year the sales are steadily increasing.

DUNCAN McGLASHAN, LTD., ABDINE WORKS, WESTFIELD RD., EDINBURGH

ALZA
VANISHING CREAM

THE MOST POPULAR AND PROFITABLE.
Write for Window Display terms to

ALZA Mfg. Co. Chorlton-
Cum-Hardy, Manchester

DUTCH
Sugar
of Milk.
"THE BEST"

HOLLANDSCHE
MELKSUIKERFABRIEK
Amsterdam

CHATELAIN'S ~~SCIENTIFIC~~ REMEDIES

Chatelain's Remedies are the scientific result of many years' practical study of the cause and effect of human ills. They are not quack medicines, but are produced solely from the formulæ of J. L. CHATELAIN, the celebrated French Chemist (the late Principal of the Laboratories of the Paris Hospitals).

IT WILL PAY YOU TO STOCK CHATELAIN'S SCIENTIFIC REMEDIES.

YOUR PROFIT IS SAFEGUARDED. ALL CHATELAIN REMEDIES ARE ON THE P.A.T.A., AND THEY HAVE BEEN BROUGHT PROMINENTLY TO THE NOTICE OF THE MEDICAL PROFESSION.

URODONAL

For rheumatism, gout, sciatica, arterio-sclerosis—and all uric acid complaints.

URODONAL is the most powerful solvent of uric acid and is now a *proven remedy* for uric acid troubles.

URODONAL IS WELL ADVERTISED—WE ARE INCREASING OUR ADVERTISING AND SALES ARE INCREASING—SEE TO YOUR STOCK!

Sells at 5/- and 12/-

SINUBERASE

For indigestion, dyspepsia and all gastric and intestinal disorders.

SINUBERASE may be confidently recommended in all cases of indigestion and disorders arising therefrom.

SINUBERASE WILL PROVE A POPULAR LINE WITH THE PUBLIC—IT IS WORTH YOUR WHILE TO STOCK IT AND DISPLAY IT NOW.

Sells at 3/-

GLOBEOL

For anæmia, convalescence, debility, neurasthenia and as a general tonic.

GLOBEOL forms blood, muscle and nerve. It is a scientific tonic that imparts health and strength to the whole system.

GLOBEOL IS ALREADY RECOGNISED AS A SAFE AND POWERFUL TONIC FOR CHILDREN AND ADULTS—ITS NAME WILL BE A HOUSEHOLD WORD. Sells at 3/- (Pills) and 5/- (Liquid).

JUBOL

For constipation, enteritis and all bowel disorders—it "re-educates" the intestine.

JUBOL treatment attacks the root cause of constipation—it "re-educates" the intestine to its normal functions.

JUBOL WILL BECOME A NATIONAL REMEDY TO SUPERSEDE LAXATIVES AND PURGATIVES IN THE PERSONAL TREATMENT OF CONSTIPATION.

Sells at 3/-

JUBOLITOIRES (Suppositories). JUBOLITAN (Ointment).

For hæmorrhoids, anal fistula, etc.

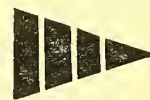
JUBOLITOIRES AND JUBOLITAN OINTMENT are a positive cure for hæmorrhoids, even in their severest form—for adult use only.

JUBOLITOIRES AND JUBOLITAN OINTMENT ARE THE FIRST REALLY EFFECTIVE CURE FOR HÆMORRHOIDS—STOCK AND RECOMMEND THEM!

Both sell at 3/-



Every Chemist is invited to write for our booklet "Scientific Remedies," which gives full particulars of all Chatelain preparations—sent post free on request.



WATCH FOR OUR URODONAL ADVERTISEMENTS — OUT VERY SHORTLY.

All Chatelain's Remedies are obtainable from the leading wholesale houses, or direct from the sole concessionnaires:

HEPPELL'S, LIMITED

164 Piccadilly, London, W.1.

Petroleum Jelly

White, Yellow, Amber,
& Ruby Red, for all
Pharmaceutical and
Veterinary purposes

MEADE-KING, ROBINSON & CO., LTD.

22 Water Street
LIVERPOOL.

523 Salisbury Hse
Finsbury Circus
LONDON.

Deansgate Arcade
MANCHESTER.

Martineau Street
BIRMINGHAM.

Wellington
Chambers
LEEDS.



REGISTERED FOR OUR
WELL-KNOWN BRANDS
OF CERESINE WAXES.

CERESINE WAX

WHITE BLEACHED CARNAUBA WAX VARIOUS GRADES
BEESWAX WHITE, YELLOW AND RESIDUE
 AND COMPOSITION PARAFFIN WAX ALL MELTING
 POINTS
OZOKERITE WAX ALL GRADES

POTH, HILLE & CO., LTD.,
6 Lloyd's Avenue, London, E.C.3. Works at
Stratford, E.

PETROLEUM JELLY

Best qualities Yellow and White B.P., Red Veterinary and Green.

GOUGH, KIDSTON & CO.

43/45 Gt. Tower Street, London, E.C. 3

Tel. No.: Royal 2666 & 2667.
Tel. Add.: Kidstonism.

Also GUM ARABIC and TRAGACANTH
BEESWAX and JAPAN WAX.

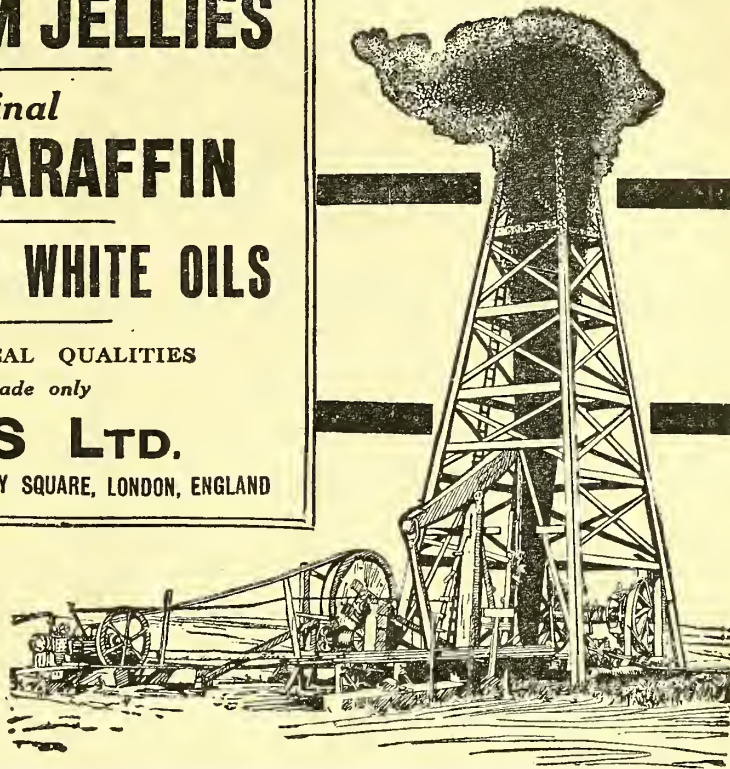
Works: Bermondsey.
Tel. No.: Hop. 2029.

PETROLEUM JELLIES*Medicinal***LIQUID PARAFFIN****WHITE & HALF WHITE OILS**

B.P. AND TECHNICAL QUALITIES

*Wholesale Trade only***STERNS LTD.**

80 ROYAL LONDON HOUSE, FINSBURY SQUARE, LONDON, ENGLAND

**THE METHYLATING Co., LTD.**
for METHYLATED SPIRIT.

KINNAIRD HOUSE, Pall Mall East, LONDON, S.W.1.

Telephone: Regent 5621.

Telegraphic Address: "Methcolim, Phone, London."

ADEPS LANÆ, P.B.

THE FINEST BRITISH LANOLINE PRODUCED

IS MANUFACTURED BY

THE PHARMACEUTICAL LANOLINE CO.**Carnwath Road, Fulham, London, S.W.6**

Telephone: Putney 1153 and 1154.

WHO INVITE ENQUIRIES. Telegrams: "Batapo, Walgreen, London."

Telephone—SLOANE 3461 (7 lines).

Telegrams—"Dicotto, Sowest, London."

W. B. DICK & CO., LTD.

26 Grosvenor Gardens, London, S.W.1

Works : LONDON, LIVERPOOL, GLASGOW

PARAFFINUM LIQUIDUM B.P.

S.G. 890/5. Guaranteed to remain bright at 0°C.

White and Half White Oils
B.P. White and Yellow Petroleum Jellies

QUOTATIONS & SAMPLES will be sent on application.

PETROLEUM JELLY
("SALVO PETROLIA")
BRAND

THE PERFECTION OF PETROLEUM JELLY
MANUFACTURED SOLELY BY

THE DEE OIL CO. LD.

**D 23 & 24 EXCHANGE BUILDINGS
LIVERPOOL**

TELEPHONE—**CENTRAL 3859** TELEGRAMS—**CESTRIAN**

LONDON OFFICE
11 POULTRY, CHEAPSIDE, E.C.2. PHONE : CITY 8455

**PACKED IN BARRELS KECS OR
SMALLER PACKAGES IF DESIRED.**

OTHER GRADES OF
PETROLEUM JELLIES WHITE BASES ETC.
WHITE OILS B.P. & Technical Qualities
SAMPLES & PRICES ON APPLICATION

OLEUM DEELINÆ (DEE OIL)
THE UNFAILING CURE FOR ECZEMA.

Waldorf
The Grand Star

SWAN INK

ORIENTAL POPPY

BLACKBIRD
FOUNTAIN PENS

MALT
Extract with
Cod Liver Oil

SWAN INK

EASTERN
RELAX

CLAY

Efficient Display

NEW
"STAND-SHOWCARD"

NO STRUT NO GLUE

**Cut in one piece.
Self-fixing.
Pack flat.**

YOUR CARDS WILL
BE USED—YOUR
GOODS DISPLAYED

OVER 1,000,000 USED BY
LEADING MANUFACTURERS.

*Phone: Clerkenwell 4283 Patentees & Makers.
The SHOWCARD SPECIALISTS
27 GOSWELL RD LONDON, E.C.1.

Send for Particulars

ALUMINIUM OINTMENT BOXES

SUITABLE FOR PUTTING UP CREAMS, ETC.

LABELS EASILY AFFIXED.

FURTHER Reduction in Prices

SAMPLES FREE FOR THE ASKING.

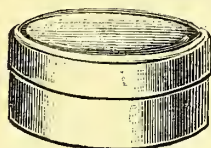
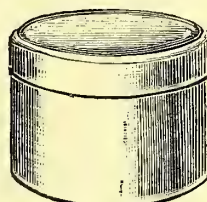
Fill the gap between the chip box and the porcelain pot.

FLAT SHAPE, per gross

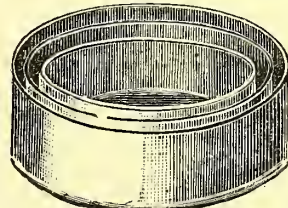
$\frac{1}{4}$ oz.	$\frac{1}{2}$ oz.	1 oz.	2 oz.
7/3	7/9	12/-	18/-

TALL SHAPE, per gross

$\frac{1}{4}$ oz.	$\frac{1}{2}$ oz.	1 oz.	2 oz.
—	—	13/-	22/-

 $\frac{1}{4}$ oz. (flat)

1 oz. (tall)

Flat shape, nested, $\frac{1}{4}$ oz.; $\frac{1}{2}$ oz.;
1 oz.; 2 oz.

CARRIAGE PAID ON ORDERS OF £3 AND UPWARDS.

A discount of 5% for prompt cash is allowed on all amounts of 10/- and upwards. Money returned if goods are not satisfactory. Write for New Price Lists of Druggists' Sundries, Toilet Requisites, Rubber Goods, Cut Sheet Rubber Appliances, etc.

BURGE, WARREN & RIDGLEY, LTD.91 & 92 GREAT SAFFRON HILL,
LONDON, E.C.1.

This gives a thorough mix-up

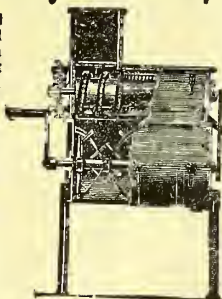
A Gardner "Rapid" sifter and mixer will thoroughly sift and mix $\frac{1}{2}$ oz. of one ingredient with a 30-lb. mixture of dry powders at one operation, and "every pinch of the whole will show its presence"—a customer's statement.

Write us for list of Ball Mills, Disintegrators, Millstones and Mills, Drum Sieves, Drying Machinery, etc.

WM. GARDNER & SONS
(Gloucester) LTD.

Bristol Road, GLOUCESTER.

*Phone 117. *Grains: "Gardner," Gloucester



SHOWCASES

UPRIGHT CENTRE CASES, WALL CASES,

GLASS COUNTERS, MIRRORS

WINDOW FITTINGS, GLASS SHELVES,

SHOW STANDS, DRAWERS, DESKS

CHECK TILLS, &c. Immense Stock.

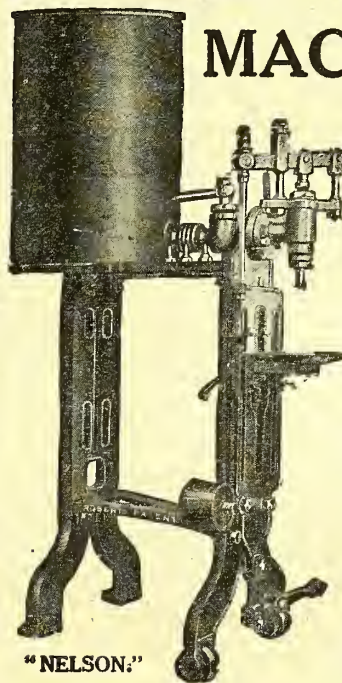
NEW and SECOND-HAND.

Ready for Immediate Delivery. For Sale or Hire.

FREDERICK MAUND

175/9 Old St., LONDON, E.C.1.

ROBERTS' ORIGINAL PATENT BOTTLE-FILLING MACHINES



Don't waste money on imitations, buy **Roberts' Machines** which actually Created the Records for

**CLEANLINESS
SIMPLICITY**

and Rapidity in
Bottle Filling.

Write for new
Price Lists.

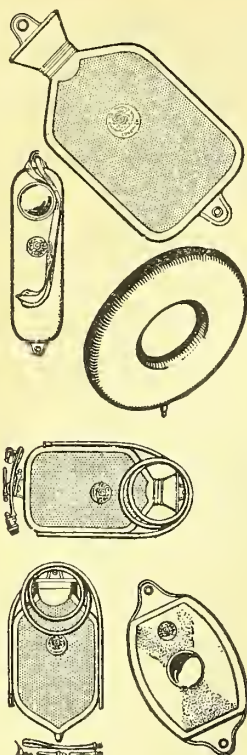
NOTE the Address:

**ROBERTS' PATENT
FILLING MACHINE CO.
33 ROUNDCROFT ST.
BOLTON.**

Our latest patent
"Alpha," price £12,
will fill 10 gross bottles
per hour.

Write for Particulars.
All Rights Reserved.

"NELSON."



RUBBER SUNDRIES of absolute reliability

In design, material and workmanship, British Goodrich Rubber Sundries are the finest that it is possible to produce. Retailing at popular prices, these appliances give complete satisfaction to every user. British Goodrich Druggist's Sundries include:—

BREAST PUMPS
DENTAL BULBS
CATHETERS

RUBBER STOPPERS
INFANT SYRINGES
ICE CAPS

HOT WATER BOTTLES

BRITISH GOODRICH

WHOLESALE DISTRIBUTORS:

H. C. NORTH & CO., Ltd.

42 SOUTHWARK STREET, LONDON, S.E.1

ts can obtain supplies through their Sundry House.

A LINE WORTH RECOMMENDING

BACKED BY A
REPUTATION
of 50 years

Chemists can offer
**Rendell's Soluble Quinine
Pessaries**
with complete confidence

The Public know Rendell's Pessaries. it is a line tested and proved in all parts of the world.

*Every Genuine
box bears
W.J. Rendell's
Autograph Trade
Mark.*

W. J. Rendell
Inventor and
Sole Maker
LONDON

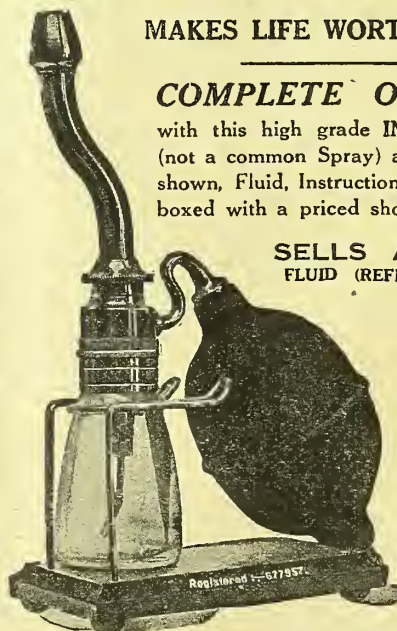
ZEALS ASTHMA FLUID

MAKES LIFE WORTH LIVING

COMPLETE OUTFITS

with this high grade INSTRUMENT (not a common Spray) and Stand as shown, Fluid, Instructions, &c., neatly boxed with a priced show ticket.

SELLS AT **25/-**
FLUID (REFILLS), 5/-



Thousands
in use in
all parts of
the World.

Write for
terms and
booklets,
or order
through
Whole-
saler.

ZEALS ASTHMA FLUID & ATOMIZER CO., LTD.
84 Uphill Park Road, WESTON-SUPER-MARE.

FAC-SIMILE OF
INGRAM'S
"AGRIPPA"
BAND TEAT
TRANSPARENT
CARTON.



PACKED, ONE
DOZEN IN
AN ATTRACTIVE
COUNTER
DISPLAY BOX.

BABY'S HEALTH ASSURED
BY USING
INGRAM'S PATENT BAND TEAT

MADE
IN
ENGLAND.

Agrippa
PATENTED 1701

PACKED IN
HYGIENIC
BOXES.

The Patent Band Grips the Bottle tightly and cannot slip off.
Ingram's "Agrippa" Teats are perfectly Hygienic.

Made from Specially Prepared Para Rubber.

Sterilizable by simply boiling in water without
deterioration of the rubber.

Highest Testimonials from the Medical and Nursing Professions.

NO
INCREASE
IN
PRICE.

ON
THE
P.A.T.A.

NO
INCREASE
IN
PRICE.

ON
THE
P.A.T.A.

Ready for sale, no
packing or wrapping
necessary. Ensures
perfect cleanliness in
handling.

Protection from dust
and contamination,
from factory to the
consumer.



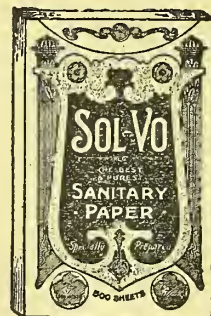
Obtainable
from all
Wholesale
Houses

J. G. INGRAM & SON, Ltd., The London India Rubber Works
HACKNEY WICK, LONDON, E.9

Makers of Fine India Rubber Products for 80 years

SOL-VO SANITARY ROLLS & PACKETS.**SOL-VO**
REGD

THE BEST & PUREST

SANITARY PAPER

	per doz.
Three dozen Rolls ...	7/- net.
Half gross „ ...	6/6 „
One gross „ ...	6/- „
Five gross „ ...	5/3 „

	per doz.
Three dozen Packets ...	10/- net.
Half gross „ ...	9/6 „
One gross „ ...	9/- „
Five gross „ ...	8/3 „

CARRIAGE PAID.

CASES FREE.

FORD, SHAPLAND & CO. Ltd.LABELS & SHOWCARDS — PRINTERS — CARTONS & ENVELOPES,
GT. TURNSTILE, HIGH HOLBORN, LONDON, W.C.1.

TELEGRAMS: FORSHAPCO, HOLB. LONDON.

TELEPHONES: HOLBORN 4695/7.

*Safety at last
with
Taylors'
"Emergoplast"*

*The Ready-for-use Wound Dressing
Free Samples and Prices on application*

Edward Taylor Ltd.
Telford & London

BUY YOUR**BOTTLES, JARS,
PILL TUBES**

PLAIN, CORKED & CAPPED

AND

VACUUM FLASKS

AT LOWEST PRICES

FROM

**C. MELIN & CO. 7 INDIA STREET
LONDON, E.C.3.****RAW CATGUT***For Surgical Strings***Reliable and Uniform****C. W. MEISEL Junior,
Klingenthal, Saxony***Please address Enquiries to Sole Export Agent:-***JOHANNES SPAHN**
Cologne, Germany

E. M. WALDEN LTD.

Manufacturers of
136 Borough High St.,

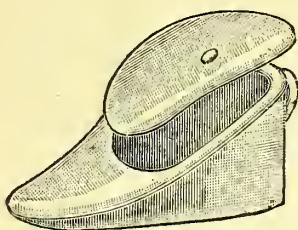
Telephone : Hop 5645-6.



Surgical Instruments, etc.

London, S.E.1

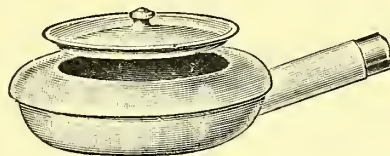
Telegrams : "Walden Hop 5645." ABC Code.



No. 827.



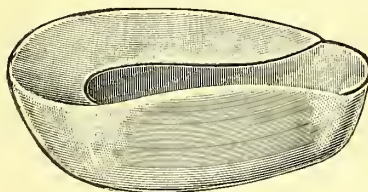
No. 787.



No. 782.



No. 833.



No. 785.



No. 837.



No. 802.



No. 838.



No. 835



No. 829.

Surgical Instruments ; Hospital Furniture ; Sterilisers ; Record and Hypodermic Syringes ; Surgical Glass and Enamel Ware ; Rubber and Vulcanite Goods ; Surgical Dressings of all descriptions ; Druggists' Sundries.

EVERY ORDER PROMPTLY FILLED FROM STOCKS IN LONDON.
ILLUSTRATED LISTS ON APPLICATION.

WHOLESALE AND EXPORT ONLY

CURASOL

The Original Boric Socks

FIXED SELLING PRICE 4½d. pair.

COST 3/- doz.

SIX DOZ. LOTS 34/6 per gross.

Distributing Agents:—

ENGLAND & WALES:—

**SANGERS, 42a Hampstead Rd.,
London, N.W.1**

SCOTLAND:—

**MUNRO, M'LAREN & SUTHERLAND
17 Cadogan St., Glasgow.**

For Sample Pair (state size) send P.C. to

The Curasol Sock Co.**19-20 Garlick Hill, London, E.C.4**

"See how it stretches"



NORVIC (REGD.)
CRÊPE BINDERS
INVALUABLE IN MATERNITY

Also recommended as a comfortable support and protection after all Abdominal Operations. Superior to Rigid Body Belts. Made in 6", 8", and 11" widths.
Obtainable from all Wholesalers.
Sole Manufacturers, Grout & Co., Ltd., 35 Wood St., London, E.C.2.

★ Why not an "Oddment"
or "Yellow Ticket"
Sale

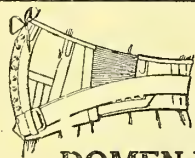
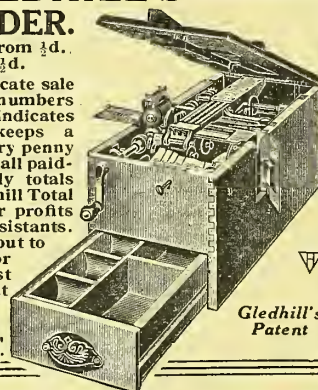
to clear those "job" lines?

List No CD.979 of Tickets and Posters
specially prepared for this purpose sent
free on request**Dudley & Company, Limited,****558/576, Holloway Rd London. N.7**

City Showrooms: 65, Fore St. E.C.2.

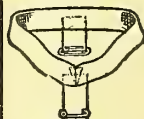
GLEDHILL'S

TOTAL ADDER.

Registers any sales from ½d.
to £19 19s. 11½d.Prints a receipt, duplicate sale
strip, consecutively numbers
every transaction, indicates
assistant's initial, keeps a
thorough check on every penny
received, accounts for all paid-
outs and automatically totals
all receipts. The Gledhill Total
Adder safeguards your profits
and protects your assistants.
British made throughout to
last a lifetime. Send for
Catalogue giving fullest
particulars, instalment
plan, etc.**G. H. Gledhill & Sons Ltd.,**
16 Trinity Works, HALIFAX.

"DOMEN" BELTS

SINGLE BELT SUPPLIED.

All sizes in stock ready for delivery per
return. List and Terms on application.
Catalogues supplied free for distribution.**DOMEN BELTS CO. Ltd.** 456 STRAND,
London, W.C.2MADE IN
ENGLAND.

The SETSNUG (Regd.) SANITARY BELT for LADIES

Costs you 12/6 per dozen. Sells at 1/6 each.

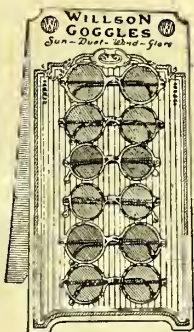
Sole Makers:

A. BURNET & CO., LTD.
48 Golden Lane, LONDON, E.C.1.

"Wimaco" Specialities, British and Best. INFANTS' TRUSSES and UMBILICAL BELTS

INSIST ON WIMACO MONARCH SEAL BRAND (Regd.). THERE IS NO SUBSTITUTE FOR WIMACO.
WINCHESTER MANUFACTURING CO., LTD., ISLEWORTH, MIDDLESEX

For SUN, DUST, WIND & GLARE



Assortment
Y246. A
"Two-way"
Display Card
showing Six
Goggles on
each side.
Stock is
assorted
crystal and
mottled shell
colour with
the popular
"COMFORT"
ear bows.

Each Goggle in a Vest Pocket
Leather Case.



STYLE K.7.

Coloured Goggles, Mottled, Shell Colour
and Crystal frames, without side shields.



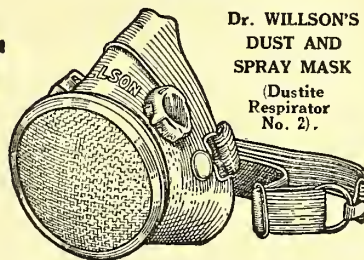
CATALOGUES

sent on request.

Also any information gladly
given.

Look for
the **WILLSON** name
on the frame

FOR DUSTY WORK AND
SPRAYING.



Dr. WILLSON'S
DUST AND
SPRAY MASK
(Dustite
Respirator
No. 2).

Dry Filter Model with 2 relief valves.

**WILLSON DUSTITE
RESPIRATOR No. 3.**

Wet sponge Filter Model with 2 relief valves.

Protection with comfortable breathing.

Distributors to the Wholesale Trade:

S. PULZER & SON, Ltd.
45 Hatton Garden, London, E.C.1.

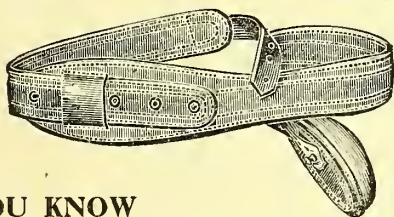
Telegrams: "Pulzone, London."

Telephone: Holborn 5288.

The "Hernicura" "COMFORTABLE"

Reg. No. 627925.

Patent No. 23241.



YOU KNOW

how often you have trouble in fitting customers with trusses, and how frequently dissatisfaction is expressed.

TRY

the "Hernicura" Trusses. They are easy to fit, possess great adaptability, give absolute satisfaction, and yet are most reasonable in price.

A 33-inch Truss will adjust from 30 to 36 inches.
Head is also adjustable.

Write for Price List.

Specimens on appro.

MORGAN-DAVIS & SONS LTD.

Truss and Surgical Appliance Makers

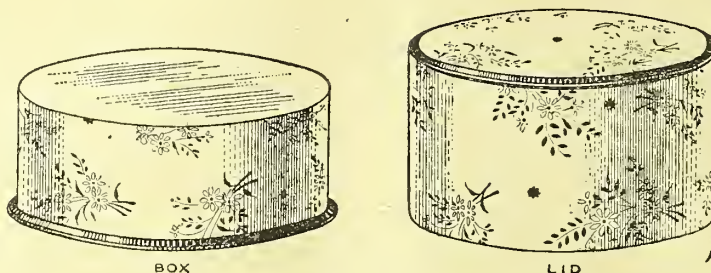
276-278 BISHOPSGATE, E.C.2.

Phone:
Bishopsgate 2417.

Best sellers
The
public is asking
for **ZEAL**
CLINICAL
THERMOMETERS
because they are:-
GUARANTEED TO
STAY ACCURATE
CONSISTENTLY
ADVERTISED

Made by
ZEAL
-the name the
public knows.
G. H. ZEAL, LTD.,
75 & 77, St. John St., London, E.C.1.

BOXES THE BEST BUYERS BUY



No. 1.

Illustrated above is one of our new Face Powder Boxes, which are very pleasing and attractive. When filled these Boxes are absolutely powder tight and remain so until the parchment drum has been punctured by the purchaser. Samples and Prices gladly sent on request.

NOTE ITS GOOD POINTS

- | | | |
|---|---|---|
| 1 | Flanged bottom which enables lid to be taken off easily. | 1 |
| 2 | Deep Lid which shows the attractive paper to advantage. | 2 |
| 3 | Transparent or Parchment Drum, making the Box powder tight. | 3 |
| 4 | Domed and Reinforced Top. | 4 |

FACTORIES:

Wheatbridge Mills.
Helmebrook Works.
Walton Works.
Portland Works.

Telephone :
Chesterfield 2105.

Robinson & Sons, Ltd.

*Manufacturers of Round, Oval, Square
and Folding Cardboard Boxes,*

Chesterfield & London

*Robinsons
Chesterfield
Cardboard
Boxes*

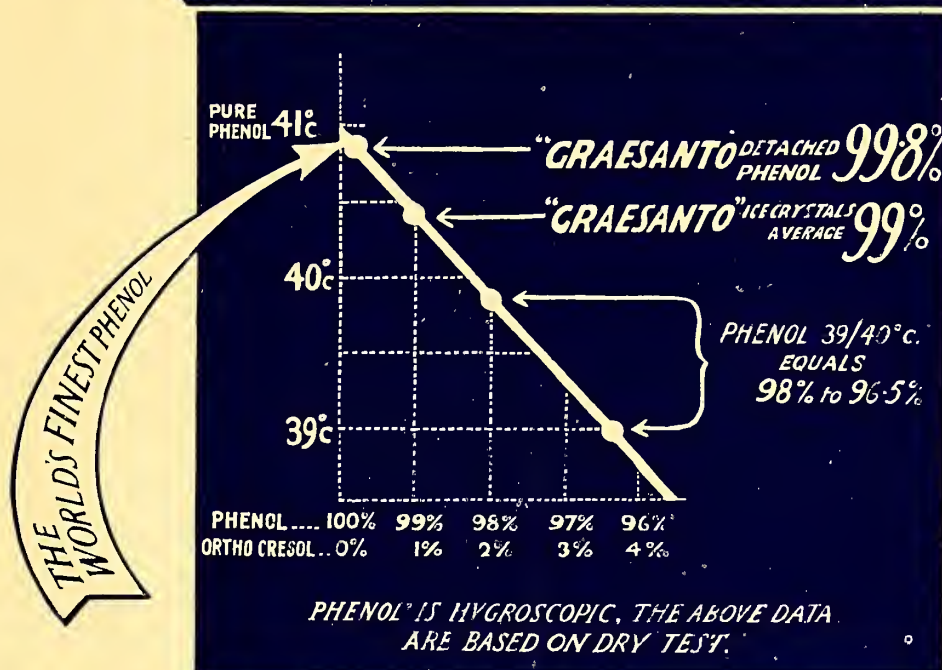
Telegraphic Address :
"Boxes, Chesterfield."



PHENOL 40/41°

"GRAESANTO" REGISTERED

**WHEN YOU BUY PHENOL ON
CRYSTALLISING POINT, WHAT
DO YOU BUY?**



WHY NOT BUY THE BEST?

Manufactured by
The
GRAESSER - MONSANTO
CHEMICAL WORKS
LIMITED
Ruabon, N. Wales.

ENORMOUS PROFITS!

ZENDA MOTH TABLETS

R *Para-di-chlor-benzine, Naphthalene, Paraldehyde, etc., etc.*

A glance at the formula shows the effectiveness of these tablets. Whilst harmless to domestic animals and human beings, they are certain death to Moths and all Insect Pests.



Tins of 32—**7/-** per doz.

P.A.T.A. **1/3** tin.

Smart Showbills, Show Outers, etc., with all orders.

£2 ORDER
CARRIAGE PAID.

Feature these tablets and you are on a good thing; if you doubt our words try them in your own household.

FREE SAMPLES ON
APPLICATION.

One tablet in a drawer, wardrobe, cupboard, etc., will keep it immune. Additionally, they are disinfectant and antiseptic. Flies will disappear like magic from a room where they are about. If one or two are placed in dustbins, waste buckets, etc., etc., all unpleasant odours will be neutralised. etc. etc.

ARTHUR H. COX & CO. LTD.

Manufacturing Chemists - - - BRIGHTON

WYLEYS'

PHARMACEUTICALS.
PEARL, GELATINE & SUGAR-COATED PILLS.
TROPELS (Registered).

Wyleys Limited, Coventry.

Price Lists
on Application.